INDIAN INDUSTRIAL COMMISSION

# MINUTES OF EVIDENCE

1916-18

## VOLUME IV

Bombay

CALCUTTA
SUPERINTENDENT GOVERNMENT PRINTING, INDIA
1918

*Price Three Rupees Eight Annas or Five Shillings and Three Pence.*

# List of Witnesses.

## Serial Order.

| No. | Name. | Page. |
|---|---|---|
|  | **Bombay.** |  |
| 278 | Mr. C. N. Wadia, Agent, Century Spinning and Manufacturing Company, Ltd., *representing* the Bombay Millowners' Association. | 1—17 |
| 279 | Mr. F. A. H. East, Manager, Killick Nixon & Co.'s Ore Department . | 17—24 |
| 280 | Mr. N. B. Saklatwala, Partner in Tata Sons and Co., *representing* the Bombay Mill Owners' Association. | 24—42 |
| 281 | Mr. J. Cunninghame, Mechanical and Electrical Engineer, Kastoorchand Mills, Dadar. | 43—45 |
| 282 | Khan Bahadur Nusserwanjee Rustomji Mehta, Merchant, Karachi . | 45—51 |
| 283. | The Asiatic Petroleum Company (India), Ltd. . . . . . | 51—52 |
| 284 | Adjutant F. O. Maxwell, Superintendent, Salvation Army Loom Factory and Industries, Bombay. | 52—58 |
| 285 | Hon'ble Mr Munmohandas Ramji . . . . . . . | 58—73 |
| 286 | Mr. J. Welsh, Manager, Standard Mills, Bombay . . . . | 73—75 |
| 287 | Mr. H. D. Gill, A.M.I.C.E., Partner in the firm of Richardson and Cruddas, Byculla Ironworks, Bombay | 75—82 |
| 288 | Mr. Bamanshaw Jamasjee Jambusarwalla, Cotton Merchant and Proprietor of Cotton Gins and Presses. | 82—83 |
| 289 | Mr. Walter Warwick, Engineer, Messrs. Nowrosjee Wadia & Sons, Bombay. | 83 |
| 290 | Major C. F. Marr, I M.S., Officiating Medical Storekeeper to Government, Bombay. | 84—93 |
| 291 | Mr. R. B. Joyner, C.I.E., M.I.C.E., The Tata Hydro-electric Power Works, Lonavla, Bombay Presidency. | 93—98 |
| 292 | Mr. W. Moir, Engineer, Manager, Messrs. Garlick & Co., Engineers and Founders, Jacob Circle, Bombay. | 98—111 |
| 293 | Dr. S. M. Sane, B.Sc., B.A. (Allahabad), Ph. D. (Berlin), *representing* Messrs. N. Powell & Co., Manufacturing Chemists, Bombay. | 111—119 |
| 294 | Rai Saheb Chandrika Prasada, Retired Assistant Traffic Superintendent, Bombay, Baroda and Central India Railway. | 119—123 |
| 295 | Mr. R. K. Kanga, Managing Agent, Western India Glass Works, Ltd., Sunth Road, Bombay, Baroda and Central India Railway. | 123—128 |
| 296 | Mr. E. M. Hodgson, Divisional Forest Officer, Belgaum . . . | 128 |
| 297 | Mr. D. R. MacIntosh, Chief Inspector of Steam Boilers and Prime Movers, Bombay Presidency. | 128—134 |
| 298 | Mr. J. A. Wadia, Merchant, Bombay . . . . . . . | 135—143 |
| 299 | Mr. W. Walker, *representing* Messrs.. Ewart Latham & Co., Agents, the Bombay Woollen Manufacturing Co., Ltd. | 144—159 |

## List of Witnesses—*contd.*

### Serial Order—*contd.*

| No. | Name. | Page. |
|---|---|---|
| 300 | Mr. N. K. Joshi, B.A., Banker, Bombay | 159—162 |
| 301 | Captain R. L. Mackenzie Wallis, R.A.M.C., Bombay Bacteriological Laboratory, Parel. | 162—163 |
| 302 | The Indian Merchants' Chamber and Bureau, Bombay represented by— | |
| | (1) Sir Vithaldas D. Thackersay, Kt., J.P. | 163—192 |
| | (2) Mr. Sorabjee E. Warden | |
| | (3) Hon'ble Mr. Chunilal V. Mehta | |
| 303 | Mr. L. Napier, Conservator of Forests, Central Circle, Poona | 192—193 |
| 304 | Mr. T. S. Dawson, Principal of the Victoria Jubilee Technical Institute, Bombay. | 194—197 |
| 305 | Sir Stanley Reed, Kt., LL.D., Editor, the "Times of India," Bombay | 197—200 |
| 306 | Mr. N. B. Wagle, Proprietor, Universal Agency Co., Bombay | 200—218 |
| 307 | Mr. T. W. Bonner, Locomotive Superintendent, G. I. P. Railway | 218—219 |
| 308 | Mr. F. J. Page, Locomotive and Carriage Superintendent, B., B. and C. I. Railway. | 219—227 |
| 309 | Mr. G. N. Potdar, B.A., Chemical Engineer (Tokyo), Manufacturing and Consulting Chemist, the Pioneer Alkali Works, Limited, Bombay. | 227—231 |
| 310 | Mr. H. N. Allen, Principal, College of Engineering, Poona | 231—234 |
| 311 | Mr. W. M. Schutte, Agricultural Engineer to the Government of Bombay. | 234—235 |
| 312 | Mr. N. R. Kembhavi, Managing Agent, the Mahalaxmi Ginning, Oil, Paint and Varnish Manufacturing Company, Bijapur. | 235—242 |
| 313 | Mr. Cecil L. Burns, Principal, Sir J. J. School of Art, Bombay | 242—255 |
| 314 | Mr. R. J. Vimadalal, Leather Merchant, Leather Factory, Navsari | 256—259 |
| 315 | Bombay Presidency Trades Association, Limited | 260—265 |
| 316 | Mr. John Wallace, C.E., Joint Editor, "Indian Textile Journal," Bombay. | 266—268 |
| 317 | Mr. H. O. B. Shoubridge, M.I.C.E., Sanitary Engineer to Government, Bombay, Poona. | 268—274 |
| 318 | Mr. L. M. Deshpande, Chairman of the Board of Directors of the Deccan Match Manufacturing Company, Limited, Karad. | 274—282 |
| 319 | Mr. H. N. Morris, Chairman of the Eastern Chemical Company, Ltd. | 282 |
| 320 | Mr. D. S. Shaligram, Industrial Inspector, Kolhapur State | 282—287 |
| 321 | Mr. R. L. Sutaria, Partner, Messrs. Kothari, Sutaria & Co., and Director of the Indian Cotton Oil Company, Ltd. | 287—315 |

## List of Witnesses—*contd.*

### Serial Order—*contd.*

| No. | Name. | Page. |
|---|---|---|
| 322 | MR. A. F. YUILL, Works Manager, The Indian Cotton Oil Company, Ltd., Navsari. | 315—323 |
| 323 | MR. SORABJI M. RUTNAGUR, Patent Agent and Joint Editor of the "Indian Textile Journal," Bombay. | 323—327 |
| 324 | MR. A. G. GRAY, Acting Manager, The Bank of India, Limited, Bombay. | 327—332 |
| 325 | MR. LALJI NARANJI, Manager, Messrs. Mooljee Jaitha and Company, Mill Agents, Bombay. | 332—334 |
| 326 | MR. G. MILLER, Manager, Chartered Bank of India, Australia and China, Bombay. | 334—335 |
| 327 | MR. G. E. MARJORIBANKS, Divisional Forest Officer, W. D. Kanara . | 335—338 |
| 328 | MR. W. T. POMFRET, Vice-Principal and Head of Textile Department, Victoria Jubilee Technical Institute, Bombay. | 338—351 |
| 329 | MR. A. E. MIRAMS, F.S.I., F.S.A., F.R., San. I., M.T.P.I., etc., Consulting Surveyor to the Government of Bombay. | 352—384 |
| 330 | MR. G. H. THISELTON-DYER, M.A., A.M.I.C.E., Mechanical Engineer to the Government of Bombay. | 385—398 |
| 331 | MR. G. R. DUNBUFF, Deputy Forest Conservator of Forests, Sind Circle. | 398—399 |
| 332 | MR. W. F. D. FISHER, Conservator of Forests, Northern Circle, Bombay. | 399—400 |
| 333 | MR. W. F. STUART-MENTETH, M.I.E.E., Electrical Engineer to the Government of Bombay. | 401—413 |
| 334 | HON'BLE MR. G. F. KEATINGE, C.I.E., I.C.S., Director of Agriculture, Bombay. | 413—422 |
| 335 | MR. A. R. BURNETT-HURST, F.S.S., Wadia Professor of Statistics and Indian Economics, Sydenham College of Commerce and Economics, Bombay. | 423—429 |
| 336 | MR. MOTILAL MANECKCHAND, Merchant and Banker, Amalner, East Khandesh. | 430 |
| 337 | MR. H. P. GIBBS, General Manager, Tata Hydro-electric Supply Company, Ltd. | 431—437 |
| 338 | MR. S. N. POCHKHANAWALA, Manager, The Central Bank of India, Ltd., Bombay. | 437—447 |
| 339 | AHMEDABAD MILLOWNERS' ASSOCIATION, represented by—<br>(1) MR. AMBALAL SARABHAI . . . . . . . . .<br>(2) SHETH MANGALDAS G. PAREKH . . . . . . . | 447—468 |
| 340 | MR. JEHANGIR C. MEHTA of Messrs. Jehangir C. Mehta and Sons, Perfume Distillers, Government Distillery, Dadar, Bombay. | 469—477 |
| 341 | MR. BHIMBHAI M. DESAI, Divisional Inspector of Agriculture, N. D. Surat. | 478—480 |

## List of Witnesses—*concld.*

### Serial Order—*concld.*

| No. | Name. | Page. |
|---|---|---|
| 342 | Mr. S. B. Desai, Proprietor, Messrs. Kulkarni Brothers, Suppliers of Rani Pens, Bombay. | 481—482 |
| 343 | Mr. T. R. D. Bell, Conservator of Forests, Southern Circle, Bombay . | 482—492 |
| 344 | Mr. R. D. Chandorkar, Superintendent, Paisa Fund Glass Works, Talegaon. | 492—499 |
| 345 | Mr. B. D. Amin, B.A., M.S.C.I., *Ex-officio* Director, The Alembic Chemical Works Company, Limited, Baroda Camp. | 499—506 |
| 346 | Mr. Jamnadas M. Mehta, M.A., LL.B., Barrister-at-Law, Bombay . | 506—507 |
| 347 | Mr. G. A. Gammie, F.L.S., Imperial Cotton Specialist . . . . | 508—509 |
| 348 | Mr. Karimbhoy Adamjee Peerbhoy, Partner, Sir Adamjee Peerbhoy and Sons, Bombay. | 510—523 |
| 349 | Mr. E. R. Fern, Superintendent of Pottery Department, Sir J. J. School of Art, Bombay. | 523—525 |
| 350 | Mr. Percy Anstey, B.Sc., Principal, the Sydenham College of Commerce and Economics, Bombay. | 526—533 |
| 351 | The Indian Economic Society, Bombay . . . . . . . | 533—538 |
| 352 | Mr. E. Eyres, Firm of Messrs. E. Eyres & Co., Manufacturers of Surgical and Medical Equipment, Bombay. | 538—544 |
| 353 | Mr. R. B. Ewbank, I.C.S., Registrar of Co-operative Societies, Bombay Presidency. | 545—559 |
| 354 | Mr Y. G. Pandit, Oil Expert, Bombay . . . . . . . | 560—563 |
| 355 | The Karachi Chambber of Commerce, Karachi . . . . . | 563—564 |
| 356 | Bombay Advisory Committee, represented by— | |
| | 1. Hon'ble Mr. Lalubhai Samaldas . . . . . . | 564—598 |
| | 2. „ „ M. N. Hogg . . . . . . . | |
| | 3. „ „ Purshotamdas Thakordas . . . . . | |
| | 4. „ „ Munmohandas Ramji . . . . . . | |
| | 5. Mr. J. S. Wardlaw Milne . . . . . . . . | |
| | 6. Mr. J. B. Petit . . . . . . . . . | |
| | 7. Mr. Ambalal Sarabhai . . . . . . . . | |
| 357 | The Karachi Indian, Merchants' Association . . . . . | 599 |
| 358 | Mr. Alfred Hyland, A.M.I.A.E., Mechanical Engineer, Bombay . | 600—603 |

# List of Witnesses.

## Alphabetical Order.

| Name. | No. | Page. |
|---|---|---|
| Adamjee Peerbhoy, Mr. K., Partner, Sir Adamjee Peerbhoy & Sons, Bombay. | 348 | 510—523 |
| Advisory Committee, Bombay, represented by— | | |
| 1. Hon'ble Mr. Lalubhai Samaldas | 356 | 564—598 |
| 2. Hon'ble Mr. M. N. Hogg | | |
| 3. Hon'ble Mr. Purshotamdas Thakordas | | |
| 4. Hon'ble Mr. Munmohandas Ramji | | |
| 5. Mr. J. S. Wardlaw Milne | | |
| 6. Mr. J. B Petit | | |
| 7. Mr. Ambalal Sarabhai | | |
| Ahmedabad Millowners' Association, represented by— | | |
| (1) Mr. Ambalal Sarabhai | 339 | 447—468 |
| (2) Sheth Mangaldas G. Parekh | | |
| Allen, Mr. H. N., Principal, College of Engineering, Poona | 310 | 231—234 |
| Ambalal Sarabhai, Mr., *representing* the Ahmedabad Millowners' Association and the Bombay Advisory Committee. | 339<br>&<br>356 | 451—468<br>&<br>578—598 |
| Amin, Mr. B. D., B.A., M.S.C.I., *Ex-officio* Director, The Alembic Chemical Works Company, Limited, Baroda Camp. | 345 | 499—506 |
| Anstey, Mr. Percy, B.Sc., Principal, the Sydenham College of Commerce and Economics. | 350 | 526—533 |
| Asiatic Petroleum Company (India), Limited | 283 | 51—52 |
| Bamanshaw Jamasjee Jambusarwalla, Mr., Cotton Merchant and Proprietor of Cotton Gins and Presses. | 288 | 82—83 |
| Bell, Mr. T. R. D., Conservator of Forests, Southern Circle, Bombay | 343 | 482—492 |
| Bhimbhai, M. Desai, Mr., Divisional Inspector of Agriculture, N. D. Surat. | 341 | 478 480 |
| Bombay Advisory Committee, represented by— | | |
| 1. Hon'ble Mr. Lalubhai Samaldas | 356 | 564—598 |
| 2. Hon'ble Mr. M. N. Hogg | | |
| 3. Hon'ble Mr. Purshotamdas Thakordas | | |
| 4. Hon'ble Mr. Munmohandas Ramji | | |
| 5. Mr. J. S. Wardlaw Milne | | |
| 6. Mr. J. B. Petit | | |
| 7. Mr. Ambalal Sarabhai | | |

## List of Witnesses—*contd.*

Alphabetical Order—*contd.*

| Name. | No. | Page. |
|---|---|---|
| BOMBAY MILLOWNERS' ASSOCIATION, represented by— | | |
| (1) MR. C. N. WADIA . . . . . . . .<br>(2) MR. N. B. SAKLATWALA . . . . . . . . | 278<br>&<br>280 | 1—17<br>&<br>24—42 |
| BOMBAY PRESIDENCY TRADES ASSOCIATION, Limited . . . . | 315 | 260—265 |
| BONNER, MR. T. W., Locomotive Superintendent, G. I. P. Railway . | 307 | 218—219 |
| BURNETT-HURST, MR. A. R., F.S.S., Wadia Professor of Statistics and Indian Economics, Sydenham College of Commerce and Economics, Bombay. | 335 | 423—429 |
| BURNS, MR. CECIL L., Principal, Sir J. J. School of Art, Bombay . | 313 | 242—255 |
| CHAMBER OF BUREAU, Indian Merchants . . . . . . | 302 | 163—192 |
| CHAMBER OF COMMERCE, Karachi . . . . . . . . | 355 | 563—564 |
| CHANDORKAR, MR. R. D., Superintendent, Paisa Fund Glass Works, Talegaon. | 311 | 492—499 |
| CHANDRIKA PRASADA, RAI SAHEB, Retired Assistant Traffic Superintendent, Bombay, Baroda and Central India Railway. | 294 | 119—123 |
| CHUNILAL V. MEHTA, HON'BLE MR., *representing* the Indian Merchants' Chamber and Bureau. | 302 | 170—192 |
| CUNNINGHAME, MR. J., Mechanical and Electrical Engineer, Kastoorchand Mills, Dadar. | 281 | 43—45 |
| DAWSON, MR. T. S., Principal of the Victoria Jubilee Technical Institute, Bombay. | 304 | 194—197 |
| DEOLE, MR. C. S., *representing* the Indian Economic Society . . | 351 | 533—538 |
| DESAI, MR. BHIMBHAI M., Divisional Inspector of Agriculture, N. D. Surat. | 341 | 478—480 |
| DESAI, MR. S. B., Proprietor, Messrs. Kulkarni Brothers, Suppliers of Rani Pens, Bombay. | 342 | 481—482 |
| DESHPANDE, MR. L. M., Chairman of the Board of Directors of the Deccan Match Manufacturing Company, Limited, Karad. | 318 | 274—282 |
| DUXBURY, MR. G. R., Deputy Forest Conservator of Forests, Sind Circle. | 331 | 398—399 |
| DYER, MR. G. H. THISELTON, M. A., A.M.I.C E., Mechanical Engineer to the Government of Bombay. | 330 | 385—398 |
| EAST, MR. F. A. H., Manager, Killick Nixon & Co.'s Ore Department | 279 | 17—24 |
| ECONOMIC SOCIETY, INDIAN, represented by— | | |
| (1) MR. J. B. PETIT . . . . . . . . . .<br>(2) MR. C. S. DEOLE . . . . . . . . . | 351 | 533—538 |
| EWBANK, MR. R. B., I.C.S., Registrar of Co-operative Societies, Bombay Presidency. | 353 | 545—559 |

## List of Witnesses—*contd.*

### Alphabetical Order—*contd.*

| Name. | No. | Page. |
|---|---|---|
| EYRES, MR. E., Firm of Messrs. E. Eyres & Co., Manufacturers of Surgical and Medical Equipment, Bombay. | 352 | 538—544 |
| FERN, MR. E. R., Superintendent of Pottery Department, Sir J. J. School of Art, Bombay. | 349 | 523—525 |
| FISHER, MR. W. F. D., Conservator of Forests, Northern Circle, Bombay | 332 | 399—400 |
| GAMMIE, MR. G. A., F.L.S., Imperial Cotton Specialist . . | 347 | 508—509 |
| GIBBS, MR. H. P., General Manager, Tata Hydro-electric Supply Company, Limited. | 337 | 431—437 |
| GILL, MR. H. D., A.M.I.C.E., Partner in the firm of Richardson and Cruddas, Byculla Ironworks, Bombay. | 287 | 75—82 |
| GRAY, MR. A. G., Acting Manager, the Bank of India, Limited, Bombay. | 324 | 327—332 |
| HODGSON, MR. E. M., Divisional Forest Officer, Belgaum . . . | 296 | 128 |
| HOGG, HON'BLE MR. M. N., *representing* the Bombay Advisory Committee. | 356 | 578—598 |
| HURST, MR. A. R. BURNETT, F.S.S., Wadia Professor of Statistics and and Indian Economics.<br>SYDENHAM COLLEGE OF COMMERCE AND ECONOMICS, Bombay . . | 335 | 423—429 |
| HYLAND, MR. ALFRED, A.M.I.A.E., Mechanical Engineer, Bombay . | 358 | 600—603 |
| INDIAN ECONOMIC SOCIETY, Bombay, represented by—<br>(1) MR. J. B. PETIT . . . . . . . . . .<br>(2) MR. C. S. DEOLE . . . . . . . . . . | 351 | 533—538 |
| INDIAN MERCHANTS' ASSOCIATION, Karachi . . . . . . | 357 | 599 |
| INDIAN MERCHANTS' CHAMBER AND BUREAU, Bombay, represented by—<br>(1) SIR VITHALDAS D. THACKERSAY, KT. J. P. . . .<br>(2) MR. SORABJEE E. WARDEN . . . . . .<br>(3) HON'BLE MR. CHUNILAL V. MEHTA . . . . . | 302 | 163—192 |
| JAMBUSARWALLA, MR. BAMANSHAW JAMASJEE, Cotton Merchant and Proprietor of Cotton Gins and Pressess. | 288 | 82—83 |
| JAMNADAS M. MEHTA, MR., M.A., LL. B., Bar.-at-law, Bombay . | 346 | 506—507 |
| JEHANGIR C. MEHTA, MR., of Messrs. Jehangir C. Mehta & Sons, Perfume Distillers, Government Distillery, Dadar. Bombay. | 340 | 469—477 |
| JOSHI, MR. N. K., B.A., Banker, Bombay . . . . . . | 300 | 159—162 |
| JOYNER, MR. R. B., C.I.E., M.I.C.E., The Tata Hydro-electric Power Works, Lonavla, Bombay Presidency. | 291 | 93—98 |
| KANGA, MR. R. K., Managing Agent, Western India Glass Works, Limited, Sunth Road, Bombay, Baroda and Central India Railway. | 295 | 123—128 |

## List of Witnesses—*contd.*

### Alphabetical Order—*contd.*

| Name. | No. | Page. |
|---|---|---|
| Karachi Chamber of Commerce, Karachi . . . . . . | 355 | 563—564 |
| Karachi Indian Merchants' Association . . . . . . | 357 | 599 |
| Keatinge, Hon'ble Mr. G. F., C.I.E., I.C.S., Director of Agriculture, Bombay. | 331 | 413—422 |
| Kembhavi, Mr. N. R., Managing Agent, the Mahalaxmi Ginning, Oil, Paint and Varnish Manufacturing Company, Bijapur. | 312 | 235—242 |
| Lalji Naranji, Mr., Manager, Messrs. Mooljee Jaitha and Company, Mill Agents, Bombay. | 325 | 332—334 |
| Lalubhai Samaldas, Hon'ble Mr., *representing* the Bombay Advisory Committee. | 356 | 578—598 |
| MacIntosh, Mr. D. R., Chief Inspector of Steam Boilers and Prime Movers, Bombay Presidency. | 297 | 128—134 |
| Mackenzie Wallis, Captain R. L., R.A.M.C., Bombay Bacteriological Laboratory, Parel. | 301 | 162—163 |
| Maneckchand, Mr. Motilal, Merchant and Banker, Amalner, East Khandesh. | 336 | 430 |
| Mangaldas G. Parekh, Sheth, *representing* the Ahmedabad Millowners' Association. | 339 | 453—468 |
| Marjoribanks, Mr. G. E., Divisional Forest Officer, W. D. Kanara . | 327 | 335—338 |
| Marr, Major C. F., I.M.S., Officiating Medical Storekeeper to Government, Bombay. | 290 | 84—93 |
| Maxwell, Adjutant F. O., Superintendent, Salvation Army Loom Factory and Industries, Bombay. | 284 | 52—58 |
| Mehta, Hon'ble Mr. Chunilal V., *representing* the Indian Merchants' Chamber and Bureau. | 302 | 170—192 |
| Mehta, Mr. Jamnadas M., M.A., LL.B., Barrister-at-Law, Bombay . | 346 | 506—507 |
| Mehta, Mr. Jehangir C., of Messrs. Jehangir C. Mehta and Sons, Perfume Distillers, Government Distillery, Dadar, Bombay. | 340 | 469—477 |
| Mehta, Khan Bahadur Nusserwanjee Rustomji, Merchant, Karachi . | 282 | 45—51 |
| Miller, Mr. G., Manager, Chartered Bank of India, Australia and China, Bombay. | 326 | 334—335 |
| Millowners' Association, Ahmedabad, represented by— | | |
| (1) Mr. Ambalal Sarabhai . . . . . . . . | 339 | 447—468 |
| (2) Sheth Mangaldas Parekh . . . . . . . | | |
| Millowners' Association, Bombay, represented by— | | |
| (1) Mr. C. N. Wadia . . . . . . . . . | 278 & | 1—17 |
| (2) Mr. N. B. Saklatwala . . . . . . . . | 280 | 24—42 |

## List of Witnesses—*contd.*

### Alphabetical Order—*contd.*

| Name. | No. | Page. |
|---|---|---|
| **Milne**, Mr. J. S. Wardlaw, *representing* the Bombay Advisory Committee. | 356 | 578—598 |
| **Mirams**, Mr. A. E., F.S.I., F.S.A., F. R. San. I., M. T. P. I., etc., Consulting Surveyor to the Government of Bombay. | 329 | 352—384 |
| **Moir**, Mr. W., Engineer, Manager, Messrs. Garlick & Co., Engineers and Founders, Bombay. | 292 | 98—111 |
| **Morris**, Mr. H. N., Chairman of the Eastern Chemical Coy., Ltd. | 319 | 282 |
| **Motilal Maneckchand**, Mr., Merchant and Banker, Amalner, East Khandesh. | 336 | 430 |
| **Munmohandas Ramji**, Hon'ble Mr., *representing* the Bombay Advisory Committee. | 285<br>&<br>356 | 58—73<br>&<br>578—598 |
| **Napier**, Mr. L., Conservator of Forests, Central Circle, Poona | 303 | 192—193 |
| **Naranji**, Mr. Lalji, Manager, Messrs. L. Mooljee Jaitha & Co., Mill Agents, Bombay. | 325 | 332—334 |
| **Nusserwanjee Rustomji Mehta**, Khan Bahadur, Merchant, Karachi | 282 | 45—51 |
| **Page**, Mr. F. J., Locomotive and Carriage Superintendent, Bombay, Baroda and Central India Railway. | 308 | 219—227 |
| **Pandit**, Mr. Y. G., Oil Expert, Bombay | 354 | 560—563 |
| **Parekh**, Sheth Mangaldas G., *representing* the Ahmedabad Millowners' Association. | 339 | 453—468 |
| **Peerbhoy**, Mr. Karimbhoy Adamjee, Partner, Sir Adâmjee Peerbhoy and Sons, Bombay. | 348 | 510—523 |
| **Petit**, Mr. J. B., *representing* the Indian Economic Society, and the Bombay Advisory Committee. | 351<br>&<br>356 | 533—538<br>&<br>578—598 |
| **Petroleum Company** (India), Limited, The Asiatic | 283 | 51—52 |
| **Puchkhanawala**, Mr. S. N., Manager, the Central Bank of India, Limited, Bombay. | 338 | 437—447 |
| **Pomfret**, Mr. W. T., Vice-Principal and Head of Textile Department, Victoria Jubilee Technical Institute, Bombay. | 328 | 338—351 |
| **Potdar**, Mr. G. N., B.A., Chemical Engineer (Tokyo), Manufacturing and Consulting Chemist, the Pioneer Alkali Works, Limited, Bombay. | 309 | 227—231 |
| **Prasada**, Rai Sahib Chandrika, Retired Assistant Traffic Superintendent, Bombay, Baroda and Central India Railway. | 294 | 119—123 |
| **Purshotamdas Thakordas**, Hon'ble Mr., *representing* the Bombay Advisory Committee. | 356 | 578—598 |
| **Ramji**, Hon'ble Mr. Munmohandas, *representing* the Bombay Advisory Committee. | 285<br>&<br>356 | 58—73<br>&<br>578—598 |
| **Reed**, Sir Stanley, Kt., LL. D., Editor, the "Times of India", Bombay | 305 | 197—200 |

# List of Witnesses—*contd.*

## Alphabetical Order—*contd.*

| Name. | No. | Page. |
|---|---|---|
| Karachi Chamber of Commerce, Karachi . . . . . . | 355 | 563—564 |
| Karachi Indian Merchants' Association . . . . . . | 357 | 599 |
| Keatinge, Hon'ble Mr. G. F., C.I.E., I.C.S., Director of Agriculture, Bombay. | 331 | 413—422 |
| Kembhavi, Mr. N. R., Managing Agent, the Mahalaxmi Ginning, Oil, Paint and Varnish Manufacturing Company, Bijapur. | 312 | 235—242 |
| Lalji Naranji, Mr., Manager, Messrs. Mooljee Jaitha and Company, Mill Agents, Bombay. | 325 | 332—334 |
| Lalubhai Samaldas, Hon'ble Mr., *representing* the Bombay Advisory Committee. | 356 | 578—598 |
| MacIntosh, Mr. D. R., Chief Inspector of Steam Boilers and Prime Movers, Bombay Presidency. | 297 | 128—134 |
| Mackenzie Wallis, Captain R. L., R.A.M.C., Bombay Bacteriological Laboratory, Parel. | 301 | 162—163 |
| Maneckchand, Mr. Motilal, Merchant and Banker, Amalner, East Khandesh. | 336 | 430 |
| Mangaldas G. Parekh, Sheth, *representing* the Ahmedabad Millowners' Association. | 339 | 453—468 |
| Marjoribanks, Mr. G. E., Divisional Forest Officer, W. D. Kanara . | 327 | 335—338 |
| Marr, Major C. F., I.M.S., Officiating Medical Storekeeper to Government, Bombay. | 290 | 84—93 |
| Maxwell, Adjutant F. O., Superintendent, Salvation Army Loom Factory and Industries, Bombay. | 284 | 52—58 |
| Mehta, Hon'ble Mr. Chunilal V., *representing* the Indian Merchants' Chamber and Bureau. | 302 | 170—192 |
| Mehta, Mr. Jamnadas M., M.A., LL.B., Barrister-at-Law, Bombay . | 346 | 506—507 |
| Mehta, Mr. Jehangir C., of Messrs. Jehangir C. Mehta and Sons, Perfume Distillers, Government Distillery, Dadar, Bombay. | 340 | 469—477 |
| Mehta, Khan Bahadur Nusserwanjee Rustomji, Merchant, Karachi . | 282 | 45—51 |
| Miller, Mr. G., Manager, Chartered Bank of India, Australia and China, Bombay. | 326 | 334—335 |
| Millowners' Association, Ahmedabad, represented by— | | |
| (1) Mr. Ambalal Sarabhai . . . . . . . .<br>(2) Sheth Mangaldas Parekh . . . . . . . | 339 | 447—468 |
| Millowners' Association, Bombay, represented by— | | |
| (1) Mr. C. N. Wadia . . . . . . . .<br>(2) Mr. N. B. Saklatwala . . . . . . . . | 278<br>&<br>280 | 1—17<br>24—42 |

## List of Witnesses—*contd.*

### Alphabetical Order—*concld.*

| Name. | No. | Page. |
|---|---|---|
| WALLACE, MR. JOHN, C. E., Joint Editor, "Indian Textile Journal," Bombay. | 316 | 266—268 |
| WARDEN, MR. SORABJEE E., *representing* the Indian Merchants' Chamber and Bureau. | 302 | 170—192 |
| WARWICK, MR. WALTER, Engineer, Messrs. Nowrosjee Wadia & Sons, Bombay. | 289 | 83 |
| WELSH, MR. J., Manager, Standard Mills, Bombay . . . . | 286 | 73—75 |
| YUILL, MR. A. F., Works Manager, the Indian Cotton Oil Company, Limited, Navsari. | 322 | 315—323 |

## QUESTIONS FOR THE ASSISTANCE OF WITNESSES.

### I.—FINANCIAL AID TO INDUSTRIAL ENTERPRISES.

**Capital.**

1. Please state if you have had any experience of the raising of capital for industrial enterprises ?

If so, what difficulties have you found in doing so ?

What suggestions have you to make for removing these difficulties ?

2. What are the sources from which capital for industrial enterprises is principally drawn ?

2 (*a*). Can you suggest any new sources from which capital may be drawn ?

3. Do you know of any kinds of industrial enterprises where more concerns have been started than can be maintained in full time employment ?

If so, please describe the general conditions.

**Government assistance.**

4. What is your knowledge or experience of financial aid by Government to industrial enterprises ?

5. What are your opinions on the following methods of giving Government aid to existing or new industries :—

(1) money grants-in-aid ;
(2) bounties and subsidies ;
(3) guaranteed dividends for a limited period, with or without subsequent refund to Government of the expenditure incurred in paying dividends at the guaranteed rate ;
(4) loans, with or without interest ;
(5) supply of machinery and plant on the hire-purchase system ;
(6) provision of part of share capital of companies on the same basis as public subscriptions of capital ;
(7) guaranteed or preferential Government purchase of products for limited periods and
(8) exemption for a limited period of the profits of new undertakings from income-tax ; and exemption from any tax on an industry, or on any article used in an industry ?

6. In which methods of Government assistance should there be Government control or supervision ?

What should be the form of such control or supervision ? (*E.g.*, Government audit or appointment of Government directors with defined powers for the period during which direct assistance lasts.)

**Pioneer factories.**

7. What is your experience or opinion of Government pioneer factories ?

[NOTE.—By pioneer factories are meant those established primarily to ascertain whether a new industry is commercially practicable ?

By demonstration factories (see Questions 19 and 20) are meant those established primarily for giving demonstrations of, and instruction in, improved methods for industries which have been proved to be commercially practicable.]

8. In what ways and to what extent should Government pioneer industries ?

At what stage should pioneer factories be either closed or handed over to private capitalists or companies ?

What limits and restrictions, if any, should be imposed on the conversion of successful pioneering experiments into permanent Government enterprises ?

**Financing agencies.**

9. In your experience what industries are hampered by the conditions under which they are financed as going concerns ?

Please describe the method of financing and its effect on the industry in each case.

10. In what ways is it possible to give more assistance to industrial undertakings by existing or new banking agencies ?

10 (*a*). Do you think there is need of a banking law ?

[See also question 39.]

**Co-operative societies.**

11. Do you know of any industries which have been developed or assisted by the formation of co-operative societies ?

What were the exact means adopted and what were the results obtained ?

12. In your experience what are the industries for which co-operative societies should be encouraged?

What should be the organisation and special objects of these Societies?

12 (*a*). What suggestions have you to make for industrial development by means of Trade Guilds, such as exist in other countries?

How far should the State encourage the promotion of such Guilds?

imits of Government assistance.

13. What principles should be followed in order to prevent Government aid competing with existing, or discouraging fresh, private enterprises.

14. Should there be any limitations on Government aid to a new enterprise if it competes with an established external trade?

## II.—TECHNICAL AID TO INDUSTRIES.

Technical aid in general.

15. What is your personal knowledge or experience of technical and scientific aid provided by Government to industrial enterprise?

16. What is your personal knowledge or experience of noticeable benefits received by local industries from researches conducted by Government departments?

17. On what conditions should the loan of Government experts be made to private firms or companies?

18. Under what restrictions and conditions would you allow publication of the results of researches made by a Government paid expert while attached to a private business?

emonstration actories.

19. Can you suggest any industry for which Government demonstration factories should be adopted and on what lines? (See note below Question 7.)

20. Should any demonstration factories be instituted in your province?

Research abroad.

21. What has been your experience of the aid afforded by the Scientific and Technical Department of the Imperial Institute?

What are its advantages and disadvantages?

22. In addition to arrangements made for research in India, is it advantageous to have provision for research for special subjects in the United Kingdom?

If so, for what special purposes is it advantageous to conduct researches in England rather than in India?

23. In what ways can the Advisory Council for Research in the United Kingdom give assistance to Indian industries?

24. Can you suggest for this country any system, similar to that of the Advisory Council for Research in the United Kingdom, for referring research problems to Colleges and other appropriate institutions in India? (See Questions 75 and 76.)

Surveys for ndustrial purposes.

25. Does the existing knowledge of the available resources of the country—agricultural, forest, mineral, etc.—require to be supplemented by further surveys?

26. How should such a survey be organised?

What should be its precise objects?

27. How should its results be made most useful to industries?

27 (*a*). What is your experience or opinion of the value of Consulting Engineers appointed by Government to aid industrial enterprise by technical advice and by the supply of plans and estimates?

(*b*) Should such Consulting Engineers be allowed to undertake the purchase of machinery and plant for private firms or individuals? If so, under what conditions?

[See Question 63 *et seq.*]

## III.—ASSISTANCE IN MARKETING PRODUCTS.

Commercial museums.

28. What is your experience or opinion of commercial museums, *e.g.*, that in Calcutta?

29. If you think commercial museums should be developed and increased in number, what suggestions have you to make regarding their situation, arrangement and working?

Sales agencies.

30. What is your experience or opinion of sales agencies or commercial emporia for the sale as well as the display of the products of minor and unorganised cottage industries?

How should they be developed?

Exhibitions.

30 (*a*) Would travelling exhibitions of such industries be of advantage?

31. What is your opinion or experience of the value of industrial exhibitions?

32. Should Government take measures to hold or to encourage such exhibitions?

If so what should be the Government policy?

33. What should be the nature of such exhibitions?

Should they be popular in character, or should they aim merely at bringing sellers and buyers into contact?

**Trade representatives.**

34. Should trade representatives be appointed to represent the whole of India, in Great Britain, the Colonies and Foreign Countries?

What should be the qualifications of these trade representatives?

How should their duties be defined?

35. In addition to these trade representatives would it be suitable in some cases also to have temporary Commissions for special enquiries?

36. Should provinces in India itself have trade representatives in other provinces?

How should such representation be arranged for?

**Government patronage.**

37. Should the principal Government departments which use imported articles publish lists of these articles, or exhibit them in commercial museums?

38. With reference to the encouragement of Indian industries, have you any criticisms to offer regarding the working of the present rules relating to the purchase of stores by Government departments?

Have you any changes to propose in the rules themselves?

**Banking facilities.**

39. In what way is it possible to assist in marketing indigenous products by more banking facilities, either through existing agencies (such as the Presidency Exchange, Joint Stock and Co-operative Credit Bank) or through new agencies (such as Industrial and Hypotheo Banks)? (see also Question 10.)

## IV.—OTHER FORMS OF GOVERNMENT AID TO INDUSTRIES.

**Supply of raw materials.**

40. What conditions should control the supply of Government-owned raw materials (*e.g.* forest products) on favourable terms?

**Land policy.**

41. Is there any check at present imposed on industrial development in your province by the land policy of Government?

If so, what remedies do you suggest?

(NOTE.—The expression "land policy" is intended to cover laws and regulations relating to settlements, the Government assessment, rents, tenant rights, permission to use land for industrial purposes, and generally all matters connected with the ownership and use of land.)

42. On what principles should Government give concessions of land for the establishment of new, or the development of existing, industries?

43. What criticisms have you to make regarding the working of the present law for the acquisition of land on behalf of industrial companies?

What modifications of the law do you recommend?

43. (*a*) In what ways and on what terms can Government assist in the provision of subterranean or surplus surface water for industrial purposes.

## V.—TRAINING OF LABOUR AND SUPERVISION.

**General.**

44. (*a*) Do you think that the lack of primary education hinders industrial development?

(*b*) What has been done in any industry of which you have had experience to improve the labourers' efficiency and skill?

45. What steps do you consider should be adopted to improve the labourers' efficiency and skill—

(*a*) generally, and

(*b*) in any industry of which you have had experience?

**Apprenticeship system and industrial and other schools.**

46. What special knowledge or experience have you of the training of apprentices in factories and workshops?

47. What advantages have you observed to follow from the establishment of industrial schools?

48. On what lines should these two systems of training (*e.g.*, apprenticeship system and industrial schools) be developed and co-ordinated?

49. What has been your experience of day schools for short-time employees, or of night schools?

How should these be developed?

50. Should industrial and technical schools and commercial colleges be under the control of the Department of Education or of a Department of Industries?

What measures should be adopted in order that these two departments should work in unison in controlling industrial schools?

**Training of supervising and technical staff.**

51. What measures are necessary for the training and improvement of supervisors of all grades and of skilled managers?

52. What assistance should be given to supervisors, managers and technical experts of private firms to study conditions and methods in other countries? (See Question 77.)

53. In what circumstances and under what conditions should industries assisted by Government be required to train technical experts?

**Mechanical engineers.**

54. Is there a want of uniformity in the standard of examinations for mechanical engineers held in the various provinces where engineers in charge of prime movers are required in certain cases to be certificated ?

If so, should measures be adopted to make such tests uniform so that the Local Governments and Administrations may reciprocate by recognising each other's certificates ?

55. If the law in your province does not require any qualifications in an engineer in charge of a prime mover, have you any criticisms or suggestions to make ?

## VI.—GENERAL OFFICIAL ADMINISTRATION AND ORGANISATION.

56. What provincial organisation exists in your province for the development of industries ?

What criticism have you to make regarding its constitution and functions ?

57. What organisations do you recommend for the future development of industries in your province ?

Should there be a Board of Industries ?

If so, what should be the functions of such a Board ?

Should it be merely advisory or should it have executive powers with budgetted funds ?

58. If you recommend an Advisory Board, how should it be constituted ?

59. If you recommend a Board with powers, what should be its constitution and how should its powers be defined ?

60. Should there be a Director of Industries ?

What should be his functions ?

Should he be a business man, or a non-expert official, or a technical specialist ?

What other qualifications should he possess ?

61. If you recommend both the formation of a Board of Industries and the appointment of a Director of Industries, what should be the relations between the Board of Industries, the Director of Industries and the Provincial Government or Administration ?

62. What form of machinery do you propose in order to correlate the separate activities of the various provinces as regards industries ?

Is it practicable to form an Imperial department under a single head ?

If so, what should be the functions of such a department ?

**Cottage industries.**

62 (*a*). Should there be special measures taken or special sections of a Department of Industries organised for the assistance of cottage industries ?

62 (*b*). Please explain in detail what should be the Government policy as regards cottage industries and how it should be carried into effect ? In this connection, see especially Questions 11, 30, 64 and 72.

62 (*c*). What cottage industries do you recommend should be encouraged in this way ?

## VII.—ORGANISATION OF TECHNICAL AND SCIENTIFIC DEPARTMENTS OF GOVERNMENT.

**General.**

63. Are there in your province any technical and scientific departments which are capable of giving assistance to industries ?

If so, what criticisms have you to make regarding their organisation ?

What changes do you recommend ?

**Imperial department.**

64. In order to aid industrial development do you recommend the formation of any new Imperial Scientific and Technical Departments ?

If so, for what subjects or natural groups of subjects ?

65. How should such an Imperial department be constituted and recruited ?

66. What should be the powers of the head of the department ?

If he has executive control of the department, what should be his relationship to the Imperial Government ?

67. What should be the relationship of an expert, whose services are loaned by the Imperial department to a Local Government, with the Local Government and the latter's Department of Industries ?

**rovincial Departments.**

68. For what subjects should Local Governments engage their own experts or organise their own technical and scientific departments ?

69. Under what direct control should these experts and departments be placed ?

70. On what terms should these experts be employed ?

**echnological insti-utions.**

71. What is the most suitable way of developing technological research institutions, such as the Indian Institute of Science ?

71 (*a*). Should there be a Technological Institute for each province, and should such Institutes be allowed to develop as independent units or should they be fitted into a general development scheme for the whole of India, with a central Research Institute ?

72. As regards investigation and research should each Institute be general in its activities and interests, or should each deal with limited group of related subjects ?

73. Should there be any Government control ?

If so, should this control be Imperial or should it be purely provincial or local ?

Co-ordination of research.

74. Is it desirable that measures should be taken to co-ordinate and prevent unnecessary overlapping of the research activities in Government Technical and Scientific Departments, special Technological Institutes and University Colleges ?

If so, what are your suggestions ?

75. What noticeable results have followed from the institution of the Indian Science Congress ?

76. Can you suggest any ways in which the Congress might become more useful in assisting industrial development ? (See Question 24.)

Study of foreign methods.

77. What encouragement should be given to Government technical and scientific experts to study conditions and methods in other countries ? (See Question 52.)

Reference libraries.

78. What difficulties have you experienced in consulting technical and scientific works of reference ?

79. Have you any suggestions to make regarding the establishment of libraries of such works ?

Colleges of commerce.

80. Do you think that the establishment of a College of Commerce is necessary in your province ?

If so, on what lines should it be organised ?

81. In what ways do you expect such a college to assist industrial development ?

81 (*a*). In what ways can Municipalities and Local Boards assist in promoting industrial and commercial development ?

## VIII.—GOVERNMENT ORGANISATION FOR THE COLLECTION AND DISTRIBUTION OF COMMERCIAL INTELLIGENCE.

Statistics.

82. Have you any criticisms to offer on the present system of collecting and distributing statistics by the Director of Statistics ?

What changes do you suggest ?

Commercial intelligence.

83. Have you any criticism to offer on the present system of collecting and distributing commercial intelligence by the Director-General of Commercial Intelligence ?

What modifications do you suggest ?

Industrial and trade journals.

84. What advantages have you found in the issue of the " Indian Trade Journal ? "

85. Should Government establish or assist industrial or trade journals, either for general or special industries, which would be of real use to persons actively engaged in industries ?

86. What proposals do you make for the dissemination of information of this kind through the various vernaculars ?

Other publications.

87. What advantages have you known to follow the issue of special monographs on industrial subjects or publications like those of the Forest and Geological Departments ?

What measures do you advise in order to increase the usefulness of these publications ?

88. Are there any other directions in which Government could collect and publish information of a kind likely to assist industries and trades ?

## IX.—OTHER FORMS OF GOVERNMENT ACTION AND ORGANISATION.

Certificates of quality.

89. Are there any products for which a system of Government certificates of quality should be established ?

For what products should such certificates be compulsory, and for what products voluntary ?

90. What should be the organisation for testing each class of products and granting certificates ?

Prevention of adulteration.

91. Are there any classes of materials for manufacture or of manufactured articles for the adulteration of which penalties should be imposed ?

92. For each such class of goods what organisation do you suggest for purposes of inspection and prosecution of offenders ?

Misdescription.

93. Have you any other suggestions to make in regard to the prevention of misdescription of goods generally ?

Trade marks and trade names.

94. What is your opinion on the present state of Indian law relating to marks and descriptions of proprietary and other articles of trade ?

Patent laws.

95. Have you any criticisms or suggestions to make regarding the existing law and regulations relating to patents ?

**Registration of partnerships.**

96. Is it desirable and practicable in the interests of trade, to introduce a system of registration or disclosure of partnerships?

**Roads, railways and waterways.**

97. To what extent does the lack of transport facilities by road, rail or water hinder industrial development in your province?

Have you any specific recommendations to make?

98. Have you any criticisms to offer regarding railway freights, the classification of goods, the apportionment of risk, and the regulation of rates?

What are your proposals?

99. Are there any railway extensions necessary in your province to develop new or to extend existing industries?

100. Similarly, are there any waterways which should be constructed, extended or improved?

**Shipping freights.**

101. Are you aware whether the external trade or internal industries of the country are handicapped by any difficulties or disadvantages as regards shipping freights?

Can you suggest any remedies?

**Hydro-electric power surveys.**

102. What has been done in your province towards ascertaining the possibilities of developing hydro-electric power?

Should further investigation be made in this matter?

102 (*a*). Have you any criticisms to make regarding the effect of the Electricity Act on industrial enterprise?

**Mining and prospecting rules.**

103. What difficulties have been experienced in the working of the Mining and Prospecting Rules (1913)?

104. Are there any minerals that are essential for industries of Imperial importance that ought to be developed at public expense? (*E.g.*, minerals of direct importance for the manufacture of munitions of war, or minerals ordinarily obtained in commerce from one country only.)

**Forest Department.**

105. From the point of view of industrial enterprise, have you any criticisms to make regarding the policy and working of the Forest Department?

What suggestions do you make.

106. What measures are practicable to reduce the cost of assembling raw forest products?

107. To what extent is it practicable to concentrate special kinds of these in limited areas?

108. What noticeable deficiencies in forest transport are known to you?

What suggestions do you make for their removal?

**Jail competition.**

109. Have you any complaints to make regarding competition by jail industries?

### X.—GENERAL.

110. What suggestions have you to make for the development of any industry in which you have been actively concerned or interested?

111. Does your experience suggest to you any new industry for which India seems peculiarly suited on account of its resources in raw materials, labour and market?

112. What supplies of raw materials are known to you of which the use in industry or trade is retarded by preventible causes?

What are those causes, and how should they be removed?

112 (*a*). Have you any suggestions to make regarding the utilisation of waste from raw materials?

112 (*b*). Have you any suggestions to make regarding Government aid in the improvement of raw material, such as, cotton, silk, sugarcane, etc.?

112 (*c*). What industries in the country are dependent on the importation of raw materials and partly manufactured articles from abroad?

113. Do you know of any supplies of raw materials for which there is a good case for investigation with a view to their development?

## BOMBAY.

---

### WITNESS No. 278.

**MR. C. N. WADIA**, *Agent, Century Spinning and Manufacturing Company, Limited, and Representative Witness nominated by the Bombay Millowners' Association.*

### WRITTEN EVIDENCE.

### *Financial Aid to Industrial Enterprises.*

Government assistance.

Having had some experience in the raising of capital for industrial enterprises, I may ay—

(1) It is not difficult to raise capital for concerns similar to those already existing (*i.e.*, cotton mills in Bombay or jute mills in Calcutta) if—

(*a*) a sound prospectus is drawn up;

(*b*) a Board of Directors of tried powers and well-known capacity figure on it.

(2) It is most difficult to raise capital for a new industry, small or large. Investor re nervous and will not tread unknown paths. The difficulty of raising capital for suc ndustries is aggravated by the fact that—

(*a*) savings of people are small;

(*b*) standard of comfort is low;

(*c*) investors are few, nervous and suspicious;

(*d*) average rate of interest is much higher than in other industrial countries;

(*e*) no local capital is available for strictly local industries, *i.e.*, laundries, gas works electric light stations, tramways, etc., capital being mainly centralised in a fev large towns.

(3) The situation in regard to sources of capital will be still more restricted after th var as the investors of Great Britain, from whom a certain amount of capital was forth oming either in the shape of loans or shares, will not be able to extend the support the ave hitherto given.

(4) Nor can I suggest any new source from which capital can be tapped.

(5) Capital is the surplus from income which remains over after satisfying th tandard of comfort of its earner. As the bulk of the people of India have no such surplus, iving as they do from hand-to-mouth, I am afraid it is not possible to suggest any new ources from which capital may be drawn.

(6) With regard to the suggested Government methods for aiding existing or new ndustries—

(*a*) I am entirely opposed to money grants-in-aid.

(*b*) Bounties and subsidies are useful, but should be used as a last resource on proved facts.

(*c*) Guaranteed dividends for a limited period, with or without subsequent refund to Government of the expenditure incurred in paying dividends at the guaranteed rate, is a desirable aid in the case of large enterprises such as railways, steel works, etc., where the dividend-earning period takes a considerable time, probably years, to mature. They should, however, be discontinued as the dividend-earning period is reached. In no case should the guarantee be given without subsequent refund.

(*d*) Loans, with or without interest, are useful to shipping enterprises where the asset is liquid, and their use is quite justified and desirable in certain cases where the effects mortgaged can be easily disposed of.

(*e*) Supply of machinery and plant on the hire-purchase system is merely an aid to incompetence and as an aid should not be given.

(*f*) Provision of part of share capital of companies on the same basis as public subscriptions of capital may be desirable in the case of feeder lines and works of utility such as gas and electric stations. But unless the works in question supply public wants, and unless without them the community will suffer, the aid is not desirable.

(g) Guaranteed or preferential Government purchase of products for limited periods I look upon as the best and most desirable aid to industry. When a new industry is started it suffers most from want of orders. Its products are unknown, its name unestablished, and consumers and purchasers alike look on it with suspicion and will have in most cases nothing to do with it. The shark appears on the scene and buys the products below cost price and so bleeds a sound commercial enterprise to its steady death. If, on the other hand, a new industry can, on starting, look forward to the removal of its products with equanimity as they are produced and Government use the products, confidence is at once established, consumers readily come forward and the shark has no room for his enterprise. If, further, the industry is protected from competition by foreigners, whose aim and object in the ordinary course of things is to speedily destroy it, so much the better.

(h) I do not think exemption for a limited period of the profits of new undertakings from income tax or any other tax amounts sufficiently to a substantial sum to cause any discomfort to an undertaking. It is too small a matter to count.

(7) I do not think it is desirable for Government to control or supervise industry for the reason that, if the control or supervision is to be efficient, the cost would be prohibitive and impossible, and anything short of efficiency is useless.

er Factories.

I think that there are many small trades, for instance making matches, which the ordinary capitalist, however enterprising he may be, is not able to start because—

(a) he does not know where to obtain suitable timber;

(b) whence he is to get phosphorus;

(c) what restrictions are necessary or desirable to safeguard the health of work-people.

I think it is the duty of Government to start pioneer industries such as the above as they have the necessary technical staff all over India to investigate and find out for them suitable materials which no private capitalist is in a position to do.

Then there are other factories for making paper, paints, pins, etc., which are in a similar category but are not dangerous trades. None of these would involve much capital or, once got going, any extensive supervision, but their start is difficult unless it is the product of a larger and complicated organisation.

I would therefore say it is incumbent on Government to start small factories of the dangerous class, *i.e.*, dangerous in themselves or dangerous to workers. I would say that it is desirable for Government to start, if not already inaugurated by private enterprise, factories for construction of every-day necessities, particularly those required by Government for their own purpose, such as stationery, pins, etc.

As to the stage at which these pioneer factories or demonstration factories are to be closed or handed over to the private capitalist, it would depend on what capitalist came forward with sufficient guarantees for successful continuance. The stage of handing over would of course be any time after it has reached a paying basis.

Government, however, is, like every other capitalist, dependent on its finances. No Government can be master of its finances unless it possesses complete and unfettered fiscal freedom. When the Government of India can acquire that desirable end and is freed from external dictation as to what it shall and shall not do, then and then only will it acquire sufficient finances to inaugurate pioneer and other factories. At the present moment the matter appears to be merely an academic discussion likely or unlikely to bear fruit.

The same remark applies to financing agencies, co-operative societies and Government assistance.

### *Technical Aid to Industries.*

Technical and scientific aid provided by Government to industrial enterprise, so far as my experience goes, is perhaps smaller and less in extent than in the case of any civilized country that I know of. Government has not the necessary finances, and until finances can be commanded Government is in the position of a needy capitalist who has to sacrifice all to serve the immediate and pressing needs of its existence.

Research in India if properly carried out will cost an enormous sum of money. Where is this huge sum to come from? Technical institutions started by private bounty and kept up by Government annuities are few and far between. The students who turn out as engineers, carders, spinners, founders, draftsmen, etc., are brought up in an environment of ease and casual work. I have seen a good many of these products and cannot say I like them. To make them fit and efficient it is necessary to give them character and stamina, and by the time they are turned out by technical schools, they are too old to acquire either. When they are placed in works, which in other words is the " school of hard knocks," they utterly fail to respond to the pressure. If Government desire to turn out sound and efficient men they must catch them young like the British Navy and they must be shoved into workshops to acquire industrious habits and stamina for industrial enterprise as they do in the British Navy. To place young men of college education, at the age of 18 and 19 years or more, in technical schools to work for four or five hours a day, to give them holidays to the extent of two or three months in a year, is to endow them with idleness and inefficiency which in after-life they can never eradicate. I shall refer to the subject again at a later stage.

### *Assistance in Marketing Products.*

India is essentially an agricultural country. It has one or two big industries, such as cotton, jute and tea, which require neither commercial museums, nor sales agencies nor trade representatives. What it produces outside these huge trades—the result of raw material on the spot—hardly needs pushing for marketing purposes.

Government patronage.

Government patronage, however, is of the greatest importance. Government is a very large consumer and I hold that Government should not buy any single article outside the limits of India that is or can be produced in the country by the aid of Government patronage. Every Government department should be compelled to publish a complete list of all articles above a certain value, which it has purchased or used during the previous twelve months. Such lists should then go to the office of the Member of Commerce and a summary made and published so that every citizen of this huge empire may be in a position to know what the Government buys and to what extent it buys, and be able to devote his energies to the production of such of these as he may elect. The present method of buying stores, etc., through the India Office is objectionable, costly and inefficient. The centres for buying should be in the Presidency towns and from the merchants who are established there.

### *Other Forms of Government Aid to Industries.*

I am unable to suggest any other form of Government aid to industries.

### *Training of Labour and Supervision.*

Industrial schools.

I think most emphatically that the lack of primary education hinders industrial development. Starting with the child ripe for tuition I should say that both his mental, manual and physical capacity should be developed simultaneously. With the A B C of the language which he learns, he should be taught to plane, to carve, to mould, so that by the time he attains the age of 9 or 10 years it may be seen whether his head or his hands are likely to serve him in after life. If he shows aptitude for learning he should be marked down for further education. If, on the other hand, he shows nimbleness of hand he should be transferred to an industrial school for a couple of years. By the time he has served two years in an industrial school he will be ready for apprenticeship in a Government or private work or with a contractor. Thus the wheat will be readily separated from the chaff at the earliest stage; each can follow the development suitable for his aptitude.

Industrial and technical schools should be under the Department of Industries established in the same manner as the Department of Education and should have full control of the curriculum of the industrial schools.

The supervising and technical staff necessary for these industrial schools will be their own product, and the sharpest and best of them in such numbers as may be required, should be sent abroad to study conditions and methods in other countries at Government expense. All Government factories should adopt the apprenticeship system, and thus in course of time one would have the educated labour necessary for efficient industrial development.

Mechanical engineers.

I understand that there is no uniformity in the standard of examinations of mechanical engineers in the various provinces. Examinations have been far too bookish and unpractical. Candidates cram up books instead of acquiring experience by practical work. I have many men in my employ who are most efficient engineers and in whose judgment I can place much greater confidence in case of serious difficulty than in those whom I am obliged to employ by Government because they possess that wonderful talisman, the certificate with their picture. In Bombay we have lately become alive to the deficiency of these annuity holders. A new Boiler Act is being brought in which will make compulsory a manual examination side by side with a written one, and I think that this efficient proposal should be uniformly adopted by all local Governments and Administrations in India. If this were done reciprocity by recognising each other's certificate would be a great and desirable reform.

As far as I am aware, there is no official administration or provincial organisation for the development of industry in the Bombay Presidency.

*Government Organisation for the Collection and Distribution of Commercial Intelligence.*

I am of opinion that the present Government organisation for the collection and distribution of commercial intelligence is efficient, and I cannot suggest any improvement.

I think the monographs on industrial subjects issued are valuable, but they should, a the end of every year, be gathered together and issued in a book form if such a course i not already pursued.

*Other Forms of Government Action and Organisation.*

Certificates of Quality.

The first point I would suggest is that all medicines and chemicals used or utilise for internal or external bodily application should be certified by Government. The cur of the body is a serious matter. Man is liable to ills without adding to them the dange o impure or adulterated medicine.

A Food or Drugs Act should at once be made applicable to the whole of India on th lines of the Acts in England. Every Presidency town should possess a complete organisa tion for such. It will be necessary to employ a certain number of inspectors to ad minister the same and to see that its terms are not violated. If you guard the healt of the people you will acquire a great industrial asset.

In our own trade of cotton spinning we use quite a number of chemicals such as chlorid of zinc, chloride of magnesium, Glauber Salt, etc. Some of the more valuable of thes chemicals are adulterated, but I do not think any legal remedy is necessary yet.

Trade Marks and Trade Names.

There is no act for registration of trade marks or trade names in India. As far as th millowners are concerned they have practically adopted a Trade Marks Registration Ac of their own which has so far answered very well as evidenced by the very few legal action taking place in regard to infringements.

Regarding trade names, I am of opinion that it would be better to have all partne ships registered by Act. One day we have a gentleman trading under the aristocrati name of Curzon and within a measurable time he suddenly blossoms into the plai Mr. Vithaldas. It is therefore difficult to know whom we are trading with unless the are compelled to disclose their identity.

Roads, Railways and Waterways.

All our goods being transported by railways, any remarks I may have to state wi refer to them only.

The railways of Bombay are admirably managed, but they require greater termin facilities. Goods have to be transported by bullock carts many miles because railwa have no facility at the nearest station for receiving or discharging goods. Further, great encouragement should be given to works and mills to take railway sidings. At present t railways appear to have a rooted objection to grant such facilities and they do their utmo to kill any proposal placed before them. In England it is just the reverse. Railways a only too keen to grant sidings in order to encourage traffic. Works or mills guaranteei a certain amount of traffic per annum for a number of years should have railway siding laid to their works free of charge or at the most at cost price. Instead of this railwa demand extra engine charges and other things causing nearly all works in Bombay to without such facilities.

Shipping Freights.

Shipping freights have hindered our trade with China, so that it appears to be withi a measurable degree of extinction. Freights are provided by a conference of the P. & and Japan lines. The freights are not settled by any rules of arithmetic, equity or justic For instance the distance to Hongkong is about half the distance to Kobe, yet that patriot institution, the P. & O. line, subsidized by Government contracts for mails, charges f one ton of yarn bales to Hongkong as much as for one ton of cotton bales to Kobe which twice as far. Their justification for this amazing act is refreshing. Cotton contains much dirt and being spun in Japan has to be brought back to Hongkong that they wish to place the respective spinners of each country on an equal basis. I am not quoting t from "Alice in Wonderland." I am quoting a sober fact.

Remedies are self-evident and up to Government to devise.

My own summary of the situation—

(*a*) Government should not give money grants under any circumstance.

(*b*) Government should loan only as a benevolent banker would loan on good securit readily realisable—but on the understanding that as long as the concern is sati factorily run as shown by its results Government would extend the cred indefinitely.

(c) Government may take shares in certain large undertakings in the same mann as a banker would do with surplus money to invest.

(*d*) Above all, Government should purchase products and guarantee purchases so long as quality were kept up. This last is the most important help, to my mind, that Government can give.

(*e*) Above all, any help given should not emasculate individual effort.

(*f*) Government should pay great attention to railway, canal and ocean transport and bring charges down to an irreducible minimum. Cheap and ample transport is the backbone of prosperity.

### ORAL EVIDENCE, 12TH NOVEMBER 1917.

*Mr. C. E. Low.*—*Q.* With reference to paragraph 6 (*g*) you realise, don't you, that there are quite a large number of industries which it is desirable to have started, but which Government cannot guarantee to purchase the products of? Take for instance a match factory. The orders of Government would not help the factory much?—*A.* I realise that. But still I think it is necessary that Government should start a match factory.

*Q.* Is there any special way in which you would suggest that a factory, where the Government cannot be a purchaser, should be encouraged? Can you suggest any special form of help for industries where Government cannot ordinarily be a purchaser?—*A.* There are certain industries which it is necessary for a country to possess. Take, for instance, a match factory. Matches are a necessity in any civilised country and are made, I think, in most of the civilised countries, Japan included. England, France, Germany, all make matches. It is rather a dangerous trade, and if it were started by ordinary enterprise, Government would soon be up against difficulties.

*Q.* The trouble is, as it has been hitherto, the finding of suitable wood.—*A.* It has been, but I should not think it is insuperable.

*Q.* Discussing the question of technical aid to industries you raise the question of practical training. Do you think that practical training should precede college training or follow it? In the case of a man who intends to go through a technical college training do you think that he should go into the shops first and into the college afterwards or *vice versa*?—*A.* It is rather difficult to answer.

*Q.* It has been put to us in this way, that if you put a man into a college first of all, nobody knows whether he is going to be a suitable man for the trade of mechanical engineering. If you give him a practical training for a year or two first of all, you are given a chance of seeing whether that is the kind of thing that he could take up and stick to, and you also give him a practical bent before he is too old for it. They complain that when men leave the technical colleges they are averse from working under factory conditions, and for that reason it has been suggested by some people that some practical training should precede college training at a fairly early age.—*A.* I think it is a very wise suggestion. Of course, most men that have risen to eminence have started low down and they acquired college training by night and at the same time they worked during the day. If you look at the railway managers of England, the locomotive superintendents, they have all practically risen from the lowest rung and worked their way up.

*Q.* You are in favour of bringing in practical training at as early an age as possible?—*A.* Yes, and providing a college career afterwards. That is necessary.

*Q.* You speak about the question of purchase of Government stores. You realise that, if Government is to concentrate its buying as largely as possible in India, it would require some means of discovering what is made in India, some organisation for doing so?—*A.* Very necessary I should think.

*Q.* Do you think that that organisation which would be an important part of the commercial industrial intelligence organisation—do you think that that should be provincial or entirely centralised? My reason for asking that question is that you say, "The centres for buying should be in the Presidency Towns." Is that a suggestion which you press very much, or do you think that it is comparatively less essential?—*A.* Several times I have been up against difficulties owing to India Office purchases. As a concrete example a certain sum of money was given to Government for building nurses' quarters at a local hospital. The building was hung up for months owing to the want of one or two steel beams. The beams could have been easily purchased locally and all this waste of time saved if all such purchases had not to be made by the India Office.

*Q.* I am confining my question to the detail as to whether there should be a central buying organisation or an organisation simply in Presidency towns or a provincial organisation.—*A.* I should think it would have to be partly both. It would have to be centralised for the whole of the Indian Empire. There would have to be some sort of organisation in the Presidency towns to ascertain what is going on in each Presidency.

*Q.* What about places like Cawnpore?—*A.* That will have to be worked from one of the Presidency towns like Calcutta.

*Q.* What is your objection to its being done by the provincial Department of Industries in the United Provinces, reporting in its turn to the central Department of Industries?—*A.* I see no objection.

*Q.* And then as regards things that cannot be obtained in India, how are they to be obtained?—*A.* I think, as far as possible through importers in the Presidency towns.

*Q.* You speak about primary industrial education. You say, "If, on the other hand, he shows nimbleness of hand he should be transferred to an industrial school for a couple of years." When you say 'transferred', that is begging rather a big question?—*A.* It is.

*Q.* Should you pick him out and make him go, or give him every inducement to go?—*A.* Pick him out and make him go.

*Q.* As regards the apprenticeship system, you consider that a special statutory position should be created for a youthful apprentice to prevent him from leaving his indentures until they have expired and so on?—*A.* I think so.

*Q.* You think that you want a special statutory position created other than the merely contractual one?—*A.* Yes.

*Q.* Do you think it is not likely to create trouble between the employers and the employed and increase the suspicion with which labour regards its employers?—*A.* I do not think so. It would teach them from the beginning the significance of a contract which they do not possess now. It would also discipline them to a certain extent which is necessary.

*Q.* You think that such a special statutory position of apprenticeship would not be unpopular among the labouring classes?—*A.* I think it would not be unpopular.

*Q.* About the Boiler Act, in Bengal we find there is no Act and they say that they have few accidents and they are getting on happily. In other parts of India we find the difficulty that one Government will not accept another Government's certificate. I understand that until the new Boiler Act was introduced by the Bombay Government they were unable to recognise the Central Provinces certificates. You consider that variation of practice and uncertainty is undesirable at present?—*A.* Yes.

*Q.* How do you think it should be done away with?—*A.* I think there should be one Act for the whole of India and one method.

*Q.* And where a certificate is granted in one province it should be valid in another?—*A.* Yes.

*Q.* Without any further examination of the men or anything?—*A.* I think so.

*Q.* As to there being complaints that the certificated men of the Central Provinces and of the United Provinces are not up to the standard in Bombay, that is very largely a question of examiners and not only of law?—*A.* Yes.

*Q.* How do you think that some uniform standard in examination should be achieved?—*A.* First of all, by limiting the places of examination, and by exchanging the examiners.

*Q.* Some form of panel from which examiners should be chosen for the whole of India—you mean something of that sort?—*A.* Yes, or sending examiners from Bombay to examine in Calcutta and so on; an interchange of examiners would, I think, achieve that uniformity very soon.

*Q.* And then would you have some form of standing or provincial committee or would you have it done directly by the Government of India? Who would control the interchange and make the necessary arrangements? You want some sort of secretarial body to do it like the Board of Examiners for the Oriental languages in Calcutta?—*A.* I should imagine that the men who examined last year in Madras should be invited to examine this year in Bombay, and so on.

*Q.* By mutual arrangement as the Agricultural Colleges do?—*A.* Yes. Quite so.

*Q.* If you get adulterated chemicals what action do you take about it?—*A.* Send them back.

*Q.* You have some form of guarantee?—*A.* We are supplied according to specification.

*Q.* If that is outside your specification, I suppose you have agreed on means of analysis?—*A.* The chemicals that we use in our mills are few, not very many. Of course, we address the standing firms and as far as I know they have fulfilled the specification so far.

*Q.* If you buy from anybody in the United Kingdom or in India, do you buy, say, under certain trade terms by which analysis is made by certain authorities? You do not say "I buy this 95 per cent. pure, and if there is any doubt samples should be taken and sent to such and such a person or persons selected by the Bombay Millowners' Association." or something of that sort?—*A*. No. We only ask for 98 or 95 per cent. of chloride of zinc or any other chemical, and as far as we have been able to ascertain we never had any difficulty about it. We never had it adulterated.

*Q*. What are the precise burdens which you say railways lay on mills wanting railway sidings? Is it not the case that jute mills in and around Calcutta are more frequently furnished with sidings than the cotton mills in and around Bombay?—*A*. Undoubtedly. I do not think there is any single mill in Bombay that has a siding; at least, I am not aware of one.

*Q*. Would it be convenient to you to put in a detailed statement of the terms which you were asked and the objections which you raised to them?—*A*. Yes.*

*Q*. I am not following you into the question of shipping freights although you say that the remedies are self-evident. One would be nationalisation? Would you recommend as far as that?—*A*. No. I mean that the Peninsular and Oriental Company is subsidised by Government and surely Government have some say, or some pressure can be put on them. It is a thorny question I admit, but it has to be faced some day.

*Mr. G. A. Thomas*.—*Q*. In paragraph 6 (c) of your written evidence you say, "Guaranteed dividends with or without subsequent refund to Government of the expenditure incurred in paying dividends at the guaranteed rate is a desirable aid in case of large enterprises such as railways, steel works, etc." In the last sentence you say, "In no case should the guarantee be given without subsequent refund." These two are inconsistent. The last sentence expresses your opinion?—*A*. I am entirely opposed to money grants-in-aid. The last sentence expresses my opinion.

*Q*. Referring again to the question of pioneer factories and the match industry, you say, "I think that there are many small trades, for instance, making matches, which the ordinary capitalist, however enterprising he may be, is not able to start because (1) he does not know where to obtain suitable timber, (2) where he is to get phosphorus, and (3) what restrictions are necessary or desirable to safeguard the health of work-people." Supposing the Government supply him with the necessary information as to where he could get timber and phosphorus and also take necessary precautions by legislation or otherwise to provide for the safeguarding of the health of the work-people, is there any reason in your mind why private enterprise should not start these factories in preference to Government?—*A*. There is no reason why they should not be started. But I think you will agree with me that Government have published many monographs on certain industries which end with the publication. Nobody comes forward to start those industries, and I think that there are certain necessary enterprises which if nobody starts them it is the purpose of the State to start and show the way to the people.

*Q*. I understand that your reason why the capitalist is unable to start is that he has not got the necessary information. But if the Government supply him with the necessary information, you would leave it to the capitalist to start the industry?—*A*. If the capitalist comes forward it would be desirable that he should start rather than the Government.

*Q*. In most cases. Government concern in the matter should end with the supply of information and the taking of necessary precautions to safeguard the health of the people in dangerous industries?—*A*. I think that Government should take a fatherly interest in any manufactures started under those circumstances.

*Q*. But they should not start the factory themselves?—*A*. I think they should if nobody else starts it.

*Q*. Your point is that Government should supply information, wait and see whether any private capitalist comes forward to start the industry, and if nobody comes forward the Government should take the industry in hand and show how it could be done?—*A*. Quite so.

*Q*. In the following paragraph, you talk about pioneer factories or demonstration factories. Are those things identical in your mind or do you distinguish between the two? What do you mean by a demonstration factory?—*A*. A demonstration factory would be like an agricultural factory making butter and showing how it is done.

*Q*. A demonstration factory would not be a permanent institution because you say in the last sentence, "The stage of handing over would be of course any time after it has reached a paying basis"?—*A*. That is a pioneer factory.

*Q*. A demonstration factory would not be run on commercial lines to make a profit and it would be for demonstration only? A pioneer factory on the other hand, is one run on commercial lines, which, as it shows profit, will be handed over to any one coming forward to take it?—*A*. Yes.

---

*Vide Appendix printed after the witness' oral evidence.

*Q.* In handing over these pioneer factories, is there not an objection to the Government handing them over to the highest bidder after they had reached a paying basis, and would that not be an handicap to competitors in the future? Would not the whole expense which the Government has incurred on a pioneer factory go to benefit a single capitalist or company later on?—*A.* I do not propose that Government should auction the factory. I suggest that Government should hand it over to some person or persons competent to run that factory.

*Q.* There may be a dozen persons capable of running that factory.—*A.* I see the difficulty you mention. I think each will have to take its chance. If the Government give a certain sum of money and invest it in a factory and the result is a profit, the Government would have done their duty.

*Q.* The person who is lucky enough to get this factory, when it is a paying concern, would have an enormous advantage over his future competitors. Is not that an objection to pioneering factories by Government?—*A.* I cannot see it.

*Sir D. J. Tata.*—*Q.* You do not want to have these factories auctioned, but you would like to hand them over to capitalists who supply sufficient guarantees for their successful continuance. Is that your idea?—*A.* My idea is not to auction to the highest bidder.

*Q.* But by some means to find out whether some capitalist is coming forward who can give guarantees for successful continuance. Is that your idea?—*A.* That is, one who will guarantee both the financial part and the ability to run it.

*Q.* How would you ascertain that?—*A.* It is not impossible to ascertain it, to distinguish between people and firms.

*Q.* You would shut out the man who wants to make a beginning because he has not made a name?—*A.* He must have some knowledge. There must be something known about the man who comes forward to take the factory over.

*Mr. G. A. Thomas.*—*Q.* Under the head of training and labour you say, "I think most emphatically that the lack of primary education hinders industrial development." Are you aware that in the Bombay mills only 17 per cent. of the children have any education whatever?—*A.* I am aware of that fact.

*Q.* Can you tell the Commission what the reason is?—*A.* I suppose they are put to work too young before they acquire education.

*Q.* What are the remedies?—*A.* Compulsory education.

*Q.* Is compulsory education the only remedy?—*A.* I should think so.

*Q.* Have you any experience of mill schools for children?—*A.* We have one in our own factory. I should like to see them centralised.

*Q.* In your own opinion, the schools which have been started have been a success?—*A.* I do not think so.

*Q.* What is the reason of their failure?—*A.* Because the parents of these children try and get them to work at one mill and then take them away so that they can go to another mill and thus steal time.

*Q.* Is not the control in the hands of the millowners?—*A.* Yes.

*Q.* As a body, could not the millowners combine to prevent this migration from mill to mill to avoid schooling?—*A.* They can, but I am afraid there is not cohesion enough amongst them to do so at present.

*Q.* Do you think that legislation is the only means of educating the mill children?—*A.* Yes.

*Sir D. J. Tata.*—*Q.* In your answer to question No. 6, sub-paragraph (e), you say, "Supply of machinery and plant on the hire-purchase system is merely an aid to incompetence and as an aid should not be given." You think that those who have not the means but the skill should not be assisted? Is not that what you mean?—*A.* I mean that those who have skill can in some way or other command the necessary finance to obtain plant independently of Government.

*Q.* Further on, in answer to the first part, you say: "It is most difficult to raise capital for a new industry, small or large," and you think that small men with the necessary skill cannot raise capital. Then you say that Government should not give him any aid. That means that a man with sufficient skill but not the means is to be left alone?—*A.* For every genuine application from a man who really is hard up for money for plant which he could instal and make it pay, Government receive at least 20 applications from men who are not able to do it and the Government's money can be better invested in other directions.

*Q*. But there might be somebody with sufficient skill and it might be good to gi him help?—*A*. May be. But as a means of aiding industry and as a means of investin surplus Government funds it would not be worth while.

*Q*. With regard to Government patronage you say: "Government patronage, how ever, is of the greatest importance. Government is a very large consumer. Every Gov ernment department should be compelled to publish a complete list of all articles abov a certain value, which it has purchased or used during the previous twelve months.' How far do you think that Government patronage should be given to the cotton industry with regard to the purchase of goods?—*A*. Very much further than they have give hitherto.

*Q*. Do you think that patronage was exercised with discrimination between mill and mills? What is your experience with regard to Government patronage?—*A*. Befor the war we had no experience. After the war began we began to supply them with certain amount of stuffs. Before the war we started the manufacture of khaki and it wa very hard to induce Government to take any of it, and the trade rather languished. Th war came and saved the khaki plant.

*Q*. Before the war do you think that there was any special favour shown to som people, while others were left out in the cold? Do you think that the patronage wa exercised equally in all cases, or was there any discrimination between mills and mills —*A*. I had no experience at all whatever before the war.

*Q*. Did you try to supply the Government direct?—*A*. Yes, some years ago. W tried to supply the army, but my experience was, it was left to the babu in charge and th babu in charge found the cloth one inch longer or one inch shorter when it did not sui him.

*Q*. But things have altered now?—*A*. Yes, very much.

*Q*. With regard to the question which Mr. Thomas asked you about the training o labour and supervision, can you give us an idea of what is being done by millowners i general about the education of half-timers? Is it general, or is it prevalent only in a few mills? Is there any serious attempt made to educate half-timers?—*A*. I do not think so. I think there is no serious attempt. The Government by means of their Collector asked the mills to start schools for half-timers. They complied with that request in a half-hearted manner, but the half-timers are not deriving any benefit from it, because, first of all, they serve in the mill for a very limited period, and if they do not get their full-time ticket they go on to another mill and try to get a full-time ticket.

*Q*. With regard to the schools for half-timers, are they outside your mills or inside your mills?—*A*. Inside. I think the Municipality should have a central school in each of the big districts and get a levy from the mills to support it.

*Q*. Has the Bombay Municipality done anything in that direction?—*A*. As far as I know, not.

*Q*. Was there not a conference between the millowners and the Municipality on the subject?—*A*. There have been many conferences, but the results have not matured.

*Q*. You say that industrial and technical schools should be under the Department of Industries. With regard to technical schools, what is the type of student that you receive from technical schools? Do you find that those students who come from technical schools shape better? Have you any experience of students from technical schools in your mills? —*A*. Yes.

*Q*. What is your experience of them?—*A*. My experience is that they go to a technical school at a stage too late in life. There they acquire habits which they cannot eradicate when they get to serious work. If they started in the works, got into the discipline of the works, the hours of the works, the hard work required in the works, and then went to school to acquire the necessary knowledge which they could apply to that work, they would be very much better men than those who go to a college at the age of 17 or 18 and then go to a technical school for the next three years and pass the examination and expect a big pay at the end of the course, without possessing the necessary works experience.

*Q*. Are you satisfied with the class of students turned out by the local Technical School? Have you in your employment any of them?—*A*. I have not, because they are not hard enough workers.

*Q*. I mean the Victoria Jubilee School. You have no students from that School?—*A*. I have had, but I do not know whether there are any now.

*Q*. Are you generally satisfied with them? Don't they make better workmen?—*A*. They would make very good workmen if they could eradicate those habits of holidays, etc.

*Q*. We have been told that skill and efficiency have been frequently more highly developed in the uneducated than in the educated. We would like to know what is your experience in the subject. Would you like your workmen to be educated or uneducated? For technical skill and manual efficiency, do you think that a workman is better for a little education?—*A*. I should say he is better for a little education. Skill is a gift, such as genius.

*Q*. Can you give us your views on the present housing conditions of labour? It has been suggested that the conditions in Bombay are very bad. What is your experience of the housing conditions?—*A*. They are extremely bad. I think that something should be done to improve them. We ourselves propose to house all our people gradually.

*Q*. Have you any experience of the conditions outside Bombay? Can you compare them with Calcutta?—*A*. I am afraid I cannot. As far as I know, the *bustees* in Calcutta are as bad as the *chawls* in Bombay.

*Q*. When you provide houses do you think that labourers take to them readily?—*A*. I think so. We have a certain amount of experience and they have done so.

*Q*. I have been told that any attempts in this direction are not successful because labourers refuse to occupy houses provided for them, because it gives their employers a sort of control over them, and they are not prepared to submit to that control. For instance, if a man did not want to work and stayed at home, the jobber would come and ask him to go to the mill to work. And that is the reason why labour is rather inclined to keep away from the houses that you provide. Is that so?—*A*. That has not been our experience.

*Q*. Can you tell us how far and why wages have risen within recent times in the Bombay mills?—*A*. My impression is that in the last ten years they have gone up fifty per cent. The reasons are the dearness of living and the demand for labour being greater than the supply.

*Q*. Why is the supply so much less than it should be? What are the causes?—*A*. Labour is required very much more largely in Bombay.

*Q*. There are more works here, and there is not enough labour?—*A*. Yes.

*Q*. Do you think that your labour responds to the stimulus of higher wages? Owing to higher wages do you get better work, better attendance, more outturn?—*A*. No, rather worse. There is no ambition in them.

*Q*. What happens to the higher wages they get? How do they spend them?—*A*. They absent themselves rather more, and they spend mostly in drink and loafing.

*Q*. A certain standard of living is all that they aim at. If they get higher wages they do not care to earn the full amount, but they do less work so as to keep up to that standard.—*A*. That is precisely what it amounts to.

*Q*. Have you any remarks to make on the economics of shorter hours? You find that they do not respond to higher wages, because it is probably due to having to work long hours. With shorter hours will that state of affairs be improved? Have you given thought to the question of working shorter hours?—*A*. First of all, the man, who is supposed to work in our mill for twelve hours never does work for 12 hours, but works eight hours and the remaining four hours he spends in the compound, sleeping or talking or amusing himself otherwise.

*Q*. Is it not rather a sweeping statement?—*A*. It is; but I have seen it, and I can prove it.

*Q*. That would not be the average?—*A*. Very nearly. We employ three times more men for the same work than they do in Lancashire, and a lot of power is wasted simply because these men will not work.

*Q*. Don't you think that if the workmen were made to work shorter hours they might put more into their work than they do now?—*A*. I do not think so. Not until their standard of living is raised. The question depends on the standard of comfort. The workman now has some idea as to what he wants. He wants a certain amount of food and drink and for the rest he wants to loaf and he wants to earn the amount necessary to keep up his standard of living with the minimum effort he can, and he does not care to go beyond it. Raise ambition in him and educate him and he will work better.

*Q*. Is not this listlessness due to the long hours from sunrise to sunset, and that goes on from year's end to year's end? If you reduce the hours from twelve to ten, he can get two hours to loaf outside and do other things that you mentioned, will he not be inclined to give you better work inside your mill?—*A*. He may, but I do not think he will,—not until you change his ideas.

*Q*. How could you do that?—*A*. By education.

*Q*. With regard to certificates of quality, you say that all medicines and chemical should be certified by Government. Would you be prepared to extend the system to othe products besides medicines and chemicals? You say, "The first point I would suggest i that all medicines and chemicals used or utilised for internal or external bodily application should be certified by Government." Would you extend the system to other products?—*A*. If the limited experience is favourable, yes.

*Q*. By what agency?—How would it be carried out?—*A*. Voluntarily. If a man wants to have a certain product of his certified by Government he can go to the Government Chemical Laboratory for analysis and get a certificate.

*Q*. Only such products as are certified would be saleable?—*A*. Would be labelled so.

*Q*. You have said something about sidings, and I believe you are going to submit a note* on it. We have also heard complaints regarding the hardships caused by heavy railway freights and the shortage of waggons. Have you any opinions on the subject?—*A*. Yes. I think that is one of the things that I am going to add to my evidence later on. Government should, after the war, be in a position in my opinion to build all their waggons, all the steel parts required, manufacture them here, and also their engines and engine parts, so as to be quite independent of the United Kingdom in case of necessity, and if Government adopted the principle of finding all their requirements in this country we should hear very much less about shortage of waggons. The shortage of waggons is, at the present moment, due to the impossibility of replacing broken down waggons.

*Q*. Are you an advocate of State management of all railways not only with reference to the building of waggons and the supply of waggons, but to the entire management of railways by the State?—*A*. Yes, entire management.

*Q*. With regard to trade marks you say : "As far as the millowners are concerned, they have practically adopted a Trade Marks Registration Act of their own which has so far answered very well as evinced by the very few legal actions taking place in regard to infringements." All the mills do not belong to the Millowners' Association?—*A* The cotton mills in Bombay.

*Q*. Not all of them. There must be a few outside?—*A*. There are.

*Q*. Do you think that at present numbers are sufficiently protected by the regulations of the Millowners' Association?—*A*. Practically they have been. There have been very few cases otherwise.

*Q* Have you any views on the subject of adulteration of cotton?—Has the Millowners' Association tried to do anything with regard to the adulteration of cotton so as to prevent it?—*A*. They have done nothing so far.

*Q* Do you think that something is necessary?—*A*. Undoubtedly. We hope that something tangible will come as the result of the Cotton Commission. It is possible to prevent it.

*Q*. Have the Millowners' Association or the millowners individually given any attention to the subject of workmen's compensation in case of accidents or death in the mills?—*A*. A certain number of mills have a provident fund similar to the Provident Fund in Railways. We have one. For all men drawing wages over Rs. 30, a certain percentage, about 5 per cent. approximately, is put into the fund and the mill at the end of the year adds a similar amount and gives interest and it helps a considerable number of people.

*Q*. That is not compensation for accidents. If any workmen met with any accident in the course of their duty, is there any provision made for their compensation?—*A*. No.

*Q*. You think that some such thing is necessary in the interests of workmen?—*A*. It is difficult to say here because it will end in more carelessness. They are already careless enough.

*Q*. There are some accidents that are not preventible?—*A*. Yes. I say that some tentative measures may be taken. I have not thought particularly about it.

*Q*. In your own case, if there is an accident in your mill what do you do?—*A*. We have a doctor on the premises and we have a dispensary. If it is a trivial case the man is attended to at once. He is sent home and the doctor goes and visits him if it is serious, and his wages and place are kept open until he is well enough to come back to us.

*Q*. Supposing he is disabled?—*A*. We employ him as far as possible in some other capacity. Supposing he dies we give a certain amount to his widow.

*Q*. Do you think this is generally done by most of the mills?—*A*. I am afraid I have no knowledge of other mills.

*Q*. Recently we understood that a British firm set aside a sum of £10,000 a year for five years for scientific research. Don't you think that an attempt should be made by millowners to start scientific research for all their requirements? The industry would be all the better for scientific advice on the several questions that may confront them. I understand that you have yourself occasionally submitted difficulties that you had to the Institute at Bangalore. Don't you think that the millowners could combine and start an Institute for scientific research to which they could submit all their scientific difficulties and questions of that kind?—*A*. I have submitted twice, I believe—once certainly, to the Institute at Bangalore, but I did not get a satisfactory reply.

---

* *Vide* Appendix printed after the witness' oral evidence.

*Q*. That is all the more reason why we should have an Institute to which all the scientific difficulties with regard to cotton and the manipulation of cotton could be submitted. Don't you think that an industry which within the last two years has earned such a large amount of profit should be asked to set aside a certain amount for the sake of supporting an institute of research to help the industry, and that it would be an advantage to do so?—*A*. I think the difficulties of cotton industry are more commercial than in the way of research.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q*. In answer to Question No. 2, you say. "It is most difficult to raise capital for a new industry, small or large." Have you changed your views now? Do you still think that there is difficulty in getting capital for starting new industry in Bombay after the influx of money which Bombay has got?—*A*. I have changed my views. It is much easier to get money.

*Q*. Do you know that the cement industry was started before the war? It was a new industry and still the capital was subscribed three times over?—*A*. I was not aware of it.

*Q*. With reference to your answer to *Q*. 6 (*d*), in what way do you want to give loans to shipping enterprises, for starting the shipping industry in the country?—*A*. I should like to see shipbuilding yards started with Government aid, either by Indian capital or Indian management, or failing that, even to ask one of the shipbuilding yards at home to come out and start shipbuilding here and thus make us independent.

*Q*. In the beginning there would be many difficulties, and therefore Government aid is necessary?—*A*. Yes.

*Q*. About the purchase of stores in this country, don't you think that when a new industry is started in India, the finish of the article cannot be just the same as that of the articles purchased from other countries where they have got the industry for a number of years and even if an article is a little inferior, do you not think that Government ought to encourage it?—*A*. I think that Government should encourage it as far as possible and point out its inferiority.

*Q*. Do you think that Government should have a Department of Industries, Imperial and Provincial?—*A*. Yes.

*Q*. And they should have experts for advising the people?—*A*. Yes.

*Q*. Is there no remedy other than fiscal freedom which can solve the Indian industrial problem?—*A*. The requirements of the industrial problem are many. If necessary I would protect industries by levying a tax.

*Q*. About primary education, do you know that the Bombay Government have appointed a committee? Do you know the recommendations of that committee in regard to the education of the mill children?—*A*. I understand that there was a bill introduced by——

*Q*. No, no. There was a special committee appointed by Government to enquire into the education of the mill-hands.—*A*. I do not know.

*Q*. Are you in favour of the education of young boys who attend mills being made compulsory?—*A*. Yes, up to eleven years. If you ask my private opinion, I would abolish half-time.

*Q*. Unless education is made compulsory for all the children in the city, is it possible to make education compulsory for the juvenile mill-hands?—*A*. I think compulsory education will have to be introduced all over the city.

*Q*. Some of the witnesses whom we have examined have stated that the spread of education among the artisan classes tended to bring manual labour into contempt and that the sons of artisans educated beyond the primary stage showed a distinct tendency to forsake their profession in favour of clerical work. Do you agree with that view?—*A*. I contend that every child born in the country should have compulsory education, and I am not contending for any further education for the artisan classes.

*Sir D. J. Tata.*—*Q*. Would you combine with primary education some system of education to increase their manual skill while they are receiving primary education?—*A*. I have stated that already.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q*. You have heard the complaints that the chawls in Bombay are extremely bad. The Improvement Trust have got a rule by which they give money for building chawls. Can you suggest why the millowners have not availed themselves of the opportunity provided by that rule of taking money from the Improvement Trust?—*A*. I think that some of them have taken advantage of it, but it is difficult to say why others have not done so.

*Q.* What were the difficulties?—*A.* I do not know. I think it is the great cost. Rs. 1,000 a room is a very big sum.

*Q.* You ought to have a full knowledge of the matter because you are going into the question yourself?—*A.* We are building our own chawls and the Improvement Trust is acquiring lands for us.

*Q.* What about the plans? Are your chawls built according to the plans of the Improvement Trust?—*A.* We submit to them plans of our own. We differ from the Improvement Trust in many respects. They have accepted our amendments.

*Q.* The Government of Bombay asked the millowners to meet them with regard to mill-hands' accommodation. Were you one of them?—*A.* Yes.

*Q.* Do you know the difficulties which some of the millowners enumerated about the matter?—*A.* Yes.

*Q.* One of the difficulties was that they have not got sufficient land near their mills?—*A.* Quite so.

*Q.* And therefore they wanted that chawls should be built in different centres and that the millowners should pay for them. Do you think that is more feasible?—*A.* That is feasible for mills in populated areas where land is of a very high value.

*Q.* Nearly half of the mills are located in the districts?—*A.* I should say half and not more.

*Q.* But at present the real reason is that the chawl costs nearly Rs. 1,000 for the building of each room?—*A.* Yes.

*Q.* Don't you think that the chawls built under the Municipal Act are cheaper?—*A.* Still the cost would run to Rs. 600.

*Q.* But don't you think that if the Improvement Trust chawls cost more than the Municipal Act chawls, the people will generally go to these chawls, instead of to your own?—*A.* I should think so. But I hope that our chawls are better than the Improvement Trust and Municipal Act chawls.

*Sir D. J. Tata.*—*Q.* Do you think that there is also another difficulty, namely, that the mill-hands generally like to reside where they have got their friends; 4 or 5 of them make a mess together, and go to different centres; and that is one of the reasons for which they do not like to remain under one control?—*A.* I have heard of that difficulty; but that could be surmounted provided there were good chawls to live in.

*Q.* Are there any difficulties of that kind in the textile mills where they have their own chawls?—*A.* I do not think so. They are always occupied from the beginning.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* In answer to one of the questions by Sir Dorabji Tata, you said that the mill-hands at present do not work more than eight hours; in fact most of them really speaking loaf about in the compound for two to four hours; that is, they are in fresh air?—*A.* Yes, such fresh air as there exists.

*Q.* Don't you think that if more wages are given they will not be able to make use of them except in drink?—*A.* It is so.

*Q.* Don't you think if there are good chawls for them, big play-grounds, cinemas and co-operative societies to raise up their economic status, they will be better off?—*A.* If you give them the power to appreciate them, they will certainly.

*Q.* And do you not think there is need for a big play-ground near the mills?—*A.* Yes, I should say so.

*Q.* At present they loaf about and overcrowd the streets and find no place to go, is it not so?—*A.* It is so.

*Q.* If you give them more pay and less hours, do you not think that they will loaf about the streets not knowing where to go and having nothing to do except to drink or go away to their villages? Don't you think that the municipality must provide big play-grounds, better accommodation in chawls, and other facilities that will make them more steady?—*A.* I think you must give them first the power to enjoy those things which cost money. If a mill-hand can earn more or has an incentive to earn more in order to go to cinema or play cricket or anything else, he will respond to the stimulus of higher wages and do better work.

*Q.* In reply to Sir Dorabji Tata you said that though they are getting more wages now they are becoming idle, and don't pay more attention to their work; so they don't need more money because they do not spend more money?—*A.* That is so.

*Q.* This cry for better wages then is a fictitious one and not really needed?—*A.* Yes, higher wages are not needed so far as they are concerned, until some means of making them spend their money except on drink are found.

*Sir D. J. Tata.*—*Q.* Is there any gambling amongst the mill operatives here to any appreciable extent?—*A.* I do not think so.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* You say in your note that "research in India, if properly carried out, will cost an enormous sum of money. Where is this huge sum to come from?" Should it be raised by taxation?—*A.* The money for research is very desirable.

*Q.* And if the money is not available Government must give it?—*A.* I think Government have got to find money in so many other directions that they won't have money enough.

*Q.* Under training of labour and supervision in your note, you say that promising boys from the technical schools should be sent abroad to study conditions in other countries. That is, with Government scholarships?—*A.* Quite so.

*Q.* If you are going to start industrial schools concurrently with schools for primary education, you have got to find teachers for the industrial schools; how are you going to find them?—*A.* By inducing boys to go to different countries under a system of scholarships, and when these boys come back they can take charge of these industrial schools.

*Q.* Do you think that the present system of Government scholarships to students for technical education is working well?—*A.* The number of scholarships awarded are too small to form a judgment.

*Q.* You think there ought to be more?—*A.* I think 20 times, probably more.

*Sir D. J. Tata.*—*Q.* Where do the Japanese send their men for technical training?—*A.* To workshops in England and America.

*Q.* Are they admitted to the workshops there?—*A.* Yes, I think so; particularly if they go with a Government recommendation. The Government of India have managed to get their scholars in easy enough.

*Q.* You don't think there is any difficulty for Indians to get into workshops in Europe?—*A.* I do not think so, if they go with proper introduction.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* As regards your statement about State management of railways, what are the difficulties you find under company management? You want that all the railways must be State managed?—*A.* Yes.

*Q.* Could you say what difficulties you have in regard to company management of railways?—*A.* Well, I suppose the biggest difficulty is that one company wants to make a railway from A to B and another one wants to make a competitive railway from C to D. In England the companies manage the railways and you have no less than three or four railways coming to a single town. As soon as one company has taken to earn dividend on a certain section of a railway, another company comes along to compete.

*Q.* You do not want railway enterprises to make money? Do you think that a railway management ought to make more money or facilitate more trade and industries?—*A.* The object of a railway under Government management would be to facilitate trade and industry; they will have no shareholders to satisfy.

*Q.* You want them to help industries, and they ought not to be so commercially managed?—*A.* I think that the first function of a railway is to aid the industries of the country rather than earn money.

*Hon'ble Sir R. N. Mookerjee.*—*Q.* With reference to the policy about railway sidings, I should like to ask you two questions. First, you are aware that all the railways have got the same rules. In Bengal there have been no difficulties in getting a siding to a factory. You say in Bombay you could not get sidings?—*A.* I have not gone into the question fully. I recollect the Bombay railways want more engine charges to bring wagons to a siding of even 5 to 10 miles, and then these engine charges are so prohibitive that it is impossible to take advantage of sidings.

*Q.* These are important points, and we want a report based on facts. The general rule is this. If you want a siding to assist a factory, you have to apply to the parent line. They will give you an estimate of the cost of laying rails and of the embankment, including the cost of acquiring lands. They may ask you generally to do the minor works yourself, such as earthwork, and they will charge you a certain percentage of interest on their capital outlay. This is the general rule. So instead of mentioning an imaginary grievance, if you will kindly state the facts exactly to the Railway Board who are controlling all railways, any such differences in treatment will generally be remedied by the Railway Board. I only want to draw your attention to the point that before you urge a point kindly state the facts. I think your difficulty is that all your factories are in the towns, not like the Bengal jute factories, and consequently the acquisition of land is an expensive item and that is one reason why you do not get sidings unless you pay enormous sums for them, whereas in Bengal the sidings are taken far away from the town and the acquisition of land is not a very expensive item and there is no complaint there against railway companies. So if you will kindly go into the matter and if possible submit a note with copies of correspondence to verify your statements, we shall be very much obliged. We want to take up the question seriously and we want real facts on which to base our statement. The next question I want to ask you is about Government management in regard to railways. You want that every railway should be constructed and managed by Government?—*A*. No. I think that feeder lines should be private enterprises.

*Q*. Do you think that capitalists should construct lines and hand them over to Government for them to manage? Supposing they manage badly, the shareholders would not get reasonable dividends?—*A*. Well, it has been proved practically that company-managed lines are paying more dividends than State-managed lines: otherwise money would not be forthcoming.

*Hon'ble Sir Fazulbhoy Currimbhoy*. *Q*. You know that the companies which manage these railways have got very insignificant capital of their own, nearly 95 per cent. or more of the capital is Government capital, and that the interests of the shareholders of these companies are not identical with the interests of Indian industries. Is that a fact?—*A*. I think Mr. Preston read a paper before the Poona Engineering Society on the subject of the promotion of Indian railways.

*Q*. But I ask the question whether the shareholders' interest is operating to the disadvantage of Indian industries: is that not so?—*A*. Yes.

*Mr. A. Chatterton*.—*Q*. With reference to the remarks in your note on the subject of the difficulties of people in subscribing to new or untried industries, have you any suggestions to make as to the organisation that should be created to deal with these problems, either through industrial banks or through Government Departments of industries?—*A*. Through industrial banks undoubtedly.

*Q*. You mean the industrial bank will have to examine the proposal?—*A*. The industrial bank will have to examine the proposal.

*Q*. What I want to ascertain is whether you would put the investigation of these new industrial ventures in the hands of Government Departments like the Department of Industries, or whether you would leave them entirely to private enterprise?—*A*. I should say to private enterprise.

*Q*. In reply to Sir Dorabji Tata you said that you adhere to your remark about the supply of machinery and plant on the hire-purchase system, but would you like to apply that system of supply of machinery and plant to comparatively small industries, say, agricultural undertaking, where a man has a considerable amount of land, and wants to improve it, but has no ready money and has either to borrow money or do without the improvements? Would you consider it desirable to help him by the grant of machinery and plant on the hire-purchase system?—*A*. I should think it desirable from the man's point of view, but undesirable from the Government point of view.

*Q*. Why from the Government's point of view?—*A*. Government have to make enquiries whether the man's statements are correct or not.

*Q*. But if you had a properly organised Department, you could carry out those enquiries without difficulty?—*A*. It would be desirable for agriculture, but not for trade or industry.

*Sir F. H. Stewart*.—*Q*. Would you grant that there is a great deal of wealth upcountry apart from Bombay and Calcutta available for industrial development in the possession of lawyers, zemindars, bankers, private individuals, etc.? Do you see any growing prospect of that wealth becoming available for industrial development?—*A*. It is rather difficult to say.

*Q*. Would you refer to your answer to question 6 as to the various forms in which Government aid might be given to industries, from (*a*) to (*f*): you do not seem to consider any of those forms as useful?—*A*. No. I am not quite sure.

*Q*. But supposing that Government did decide to help in one of those forms, would you arrange for Government control during the period of assistance?—*A*. Government control should only be nominal: it could not be effective.

*Q*. You would not have Government directors or anything else of the sort?—*A*. I do not think so.

*Q*. Or Government audit of accounts?—*A*. Yes, with a view to seeing that the accounts are kept well and correctly.

*Q*. Then with reference to the age at which employés might be taken for manual training or further book learning, you say that by the time he attains the age of 9 or 10 it should be seen whether his head or his hands are likely to serve him in after-life. Would an ordinary Indian be strong enough to go into a workshop and work there at 9 or 10?—*A*. He would be strong enough if he is taught.

*Q.* You say that examinations are too bookish and unpractical, you are very keen on that point and attach great importance to it?—*A.* What I am keen about is that as soon as a boy is able to understand, that is, when he is 6 or 7 years old, he should be sent to a primary school for three years to learn his own language; I presume the teacher will be able to say whether his hands or his brain are more active while in the primary school; if his hands are active he will be passed on to a workshop for preliminary manual training. That is my point.

*Q.* Do you want him to undergo training before being passed on to the workshop?—*A.* I think that the importance of workshop training is very great indeed.

*Q.* You would put him in a workshop before further literary training?—*A.* My idea is that as soon as he has obtained a certain amount of preliminary education he should be passed on to an apprentice workshop.

*Q.* At what age would he go to the apprentice workshop?—*A.* At the age of 11 or 12.

*Q.* Are your activities mostly industrial or commercial? Do you look after your export business also or you confine yourself principally to manufacture?—*A.* I confine myself entirely to manufacture.

*Q.* Regarding registration of trade names, you are strongly in favour of the registration of firms' names: do you think there will be any practical difficulty in the way of that?—*A.* I cannot see any difficulty.

*Q.* Your belief is that it would prove to be feasible?—*A.* I think so.

## APPENDIX.

Dated 21st November 1917.

From—C. N. Wadia, Esq., Agent, Century Spinning and Manufacturing Company, Limited, Bombay;

To—The President, Indian Industrial Commission.

With reference to your request to be furnished with particulars of the Spring Mill railway siding, I have the honour to give you the following details:—

(1) The Spring Mill applied for siding about the 11th of August 1911.

(2) The Company in question deposited Rs. 200 with the Great Indian Peninsula Railway for a survey of the proposed siding.

(3) The survey was held and in accordance with the estimate made the Company signed the requisite form and deposited the requisite money on the 5th of March 1913 with one slight reservation as to terms. This reservation was subsequently waived by the Spring Mill Company.

(4) On the 13th of August 1914 the Great Indian Peninsula Railway resiled from all arrangements (see letter appended), by stating that as the Harbour Branch Railway was only intended to work south of Raoli Cabin and therefore all traffic required for the Spring Mill would be worked through Kurla station and *vice versa* and therefore the charge as laid down in the proposed agreement will not be suitable. They therefore demanded 10 rupees *per* wagon loaded or empty with a minimum charge of Rs. 50 per trip in addition to the usual freight charges.

(5) As the Railway Company did not wish to give effect to the original agreement, and arrangements could be made by the road to the Mill at a cheaper combined rate than the combined charge for haulage over the siding they did not desire the siding at the Spring Mill and the matter terminated.

---

Copy of a letter from the Agent, Great Indian Peninsula Railway, to Messrs. Nowrosjee Wadia and Sons, Agents, The Bombay Dyeing and Manufacturing Company, Limited, No. 43-S./46, dated 13th August 1914.

*Siding to the Spring Mills at Sewree.*

With reference to the correspondence ending with your letter of the 27th June 1914, I beg to address you further in connection with certain matters relative to this siding.

2. I would remind you that it is only intended to work the Harbour Branch south of Raoli Cabin for passenger traffic, with the exception of the goods traffic from Kurla to and from your Mill: that being so all traffic in and out of your siding will have to be worked by special engine to and from Kurla.

3. Thus all wagons for your Mill from stations on the Great Indian Peninsula Railway will be detached from trains at Kurla, and those from the south which will be received by us from the Port Trust at Wadala will be worked into Kurla and detached there. From Kurla these wagons will be worked into your Mill by a special engine.

Similarly wagons from your mill will be worked by a special engine to Kurla, where those for Great Indian Peninsula Railway stations will be attached to their trains and those for the Port Trust sent to Wadala.

4. It will be noted that the system of charge as laid down in the proposed agreement will not be suitable since now that the site of Sewree station has been changed your siding will take off the main line between stations. It seems to me that under the peculiar conditions that will exist it will be a more satisfactory arrangement if the ordinary railway rates were levied to or from Kurla station and a charge was made per wagon in or out of your sidings for the distance from Kurla to your siding and *vice versa*. This charge I would propose to make Rs. 10 per wagon loaded or empty placed in your siding or taken out of your siding subject, as the wagons will have to be worked by a special engine, to a minimum charge of Rs. 50 per trip to or from your siding.

5. I have also to inform you that owing to the location of Sewree station being changed it will be necessary to make some alteration in the design of the siding and erect a block cabin at the junction of the main line. This will somewhat enhance the proportion of the cost of the siding payable by the mill. I attach a revised plan and estimate from which it will be noted that the proportion of the total cost of the siding payable by the Spring Mill will be Rs. 72,624 as against Rs. 67,659, as at first estimated.

6. When Mr. Geddis saw me on the 22nd ultimo I told him that owing to a claim that had been urged to take up the whole of a property through which the siding is to pass it was possible that the cost of the land to be acquired would be enhanced. I have instructed our Engineer who is watching the proceedings that in the event of the Collector entertaining the application he is to apply for an adjournment so that your wishes may be ascertained.

7. I shall be glad to hear that you accept the revised plan and estimate referred to in paragraph 5 of this letter and agree to the rates it is proposed to charge between Kurla and your siding referred to in paragraph 4.

---

## WITNESS NO 279.

MR. F. A. H. EAST, *Manager, Killick, Nixon & Co.'s Ore Department.*

### WRITTEN EVIDENCE.

I was the original lessee of the manganese mine at Shivrajpur, Panch Mahals, and promoter of the Shivrajpur Syndicate, Limited. I am now managing Killick, Nixon and Company's Ore Department (Central India Mining Company, Limited, and D. Laxminarayan's Agency, Central Provinces, and Shivrajpur Syndicate, Limited, Panch Mahals). I was also the originator of the Syndicate which investigated the lime deposits in Rajputana now worked by the Bundi Hydraulic Lime and Cement Company, Limited, under my charge.

### *Mineral Industries.*

1. I am in favour of encouraging private search for mineral deposits by granting greater facilities to *bonâ fide* and competent prospectors, whether individuals or companies, and think this could best be done by resuscitating the old form of exploring licence in an amplified form.

2. It is assumed that an applicant for an exploring licence knows little or nothing about the mineral resources of the area applied for except in a very general way. It is therefore impossible for him at the outset to define any particular area as is required by the present form of standard prospecting licence. On the other hand, his activity and outlay entitle him to some protection, if successful, which the old form of exploring licence did not.

3. In the absence of any suitable form of exclusive preliminary licence carrying with it definite rights, the *bonâ fide* prospector is always liable to be deprived of the fruits of his labours by others, following in his tracks, taking advantage of his investigations.

4. It would facilitate negotiations with Native States if a suitable standard form of exploring licence were available as a basis. The present form of standard prospecting licence is practically useless in such negotiations since very little is known of the mineral resources of many States which, if facilities for investigation were available, might prove to contain valuable deposits.

5. I, therefore, suggest an exploring licence to be granted only after investigating the *bonâ fides* and means of the applicant, which licence should be exclusive for a limited period over an area the extent of which might be determined separately in each case according to circumstances and should entitle him within the period to apply for and obtain a prospecting licence over a more restricted area and eventually a mining lease.

6. The local authority granting an exploring licence should be given as much latitude as possible (after satisfying itself as to the status of the applicant) as to the area to be covered by the licence and as to the period of same $\frac{\text{and}}{\text{or}}$ extension of the period.

7. To assist *boná fide* prospectors, reference to the Geological Department should be encouraged, and, if possible, the services of trained geologists connected with the Department should be obtainable on payment of a reasonable fee to assist prospectors practically and with advice.

8. Native States whose mineral resources are yet hardly touched should be encouraged to grant exploring licences in the form and on the terms which it is suggested should be prescribed by Government but only to applicants holding licences from local Governments and should be discouraged from granting prospecting rights indiscriminately, possibly to incompetent persons.

9. In the interests of the mineral resources of the country generally, it would be an advantage if, before minerals of any description were allowed to be actually worked, a qualified Government official could be deputed to (1) examine the methods of working adopted $\frac{\text{and}}{\text{or}}$ (2) advise the methods to be adopted—this with a view to preventing wasteful methods being followed at the outset, whereby many manganese and other mineral deposits have been ruined as regards continued productiveness.

This involves a trained staff being maintained by Government of practical men but would provide a vocation for some of the men from the various established colleges.

### *Industrial Enterprises.*

Government assistance.

1. Speaking from experience on the cement trade only, Government assistance could be afforded—

(*a*) by the establishment of recognized testing laboratories for testing indigenous manufactures;

(*b*) by insisting on Government departments and *quasi*-Government departments and Railways purchasing indigenous manufactures which have passed the required tests at such laboratories, provided—

- (i) the quality is up to the prescribed or required standard of excellence;
- (*ii*) the cost to the purchaser is no greater than for similar non-indigenous articles delivered.

2. Use by Government officials is the best advertisement an indigenous material can possibly get, but unfortunately in the absence of any *generally recognized* testing authority competent to determine the value of local products, Government officials in some cases and with every excuse hesitate to take the onus on themselves of using new local manufactures, or worse still, rely upon tests made by themselves which they have frequently neither the appliances nor expert skill required to make and which consequently waste their time and frequently prejudice them against the article offered without adequate cause.

3. Such laboratories as suggested should be open to use by the public on easy terms and expert advice should be obtainable gratis or at a nominal charge. They should also be recognized for arbitration purposes.

4. I am not in favour of a central purchasing agency for Government requirements but am in favour of advisory officers or Boards connected with the several testing houses above suggested to advise Government officials as well as the public on various productions and whose certificates of merit should be authoritative.

5. For the less complex tests it is suggested that the laboratories attached to the Technical College at Bombay and similar institutions in other centres would suffice, while a Central Laboratory with a more expert staff might deal with more abstruse investigations, advising on industrial processes, etc.

6. The main point is that the staffs employed should be competent enough to justify confidence and that the tests should be officially recognized by Government and its servants.

7. I am not generally in favour of financial aid by grants of money (though exceptional circumstances may warrant such) but am strongly in favour of Government supporting indigenous industries by a definite ruling that the products of such are to be used by Government Departments and all institutions supported by Government in preference to imported materials—price being equal and quality being up to the standard required.

I am also in favour of Government giving undertakings or entering upon contracts in advance to purchase a percentage of the manufactures from factories *financed with rupee capital*, subject to the same provisos as above. Government will naturally not enter into such undertakings without assuring itself of the competency of the promoter, so that such undertaking affords the Indian investor a twofold assurance—

(1) as to the status of the control of the venture; and

(2) as to the market for the product.

### *Labour.*

1. A great difficulty which has been experienced is in obtaining skilled and semi-skilled artisan labour. Even if reasonably skilful, the want of any sense of responsibility frequently detracts from its usefulness.

2. Indigenous industries suffer in competition through having to import and maintain a highly paid European staff even in semi-subordinate positions on works where engineering or other technical training is necessary.

3. The demand for intelligent skilled labour is increasing and must increase more rapidly the more industries increase. The supply therefore must be augmented and improved unless such industries are to be hampered throughout.

4. The raw material even among the lower classes is available but the training is required.

5. It is suggested that inducement to acquire practical training by *intelligent* students might be afforded by Government scholarships from the primary schools to the technical colleges and from the technical colleges to established industries in the country, the funds in the latter case being partly devoted to enabling the student to maintain himself during apprenticeship and partly to an apprenticeship fee to approved employers. Considerable sums are already devoted by Government to sending students of exceptional ability home, but the number is inadequate to have any very appreciable effect on the Indian skilled labour market. Similar sums expended to enable a larger number of students who pass the required examinations in the technical colleges to obtain six months' actual works practice in the country as part of the course of training would in a few years have the effect of enhancing the number of skilled and practical and responsible men considerably. The levelling effect of experience of actual works conditions would also have a beneficial effect on the character of many students.

### *Railway Facilities.*

1. A larger, if not the greater number, of industries established in this country must be at a disadvantage in competing with imported seaborne products because—

(*a*) local markets are generally inadequate to maintain an industry on a scale large enough to ensure the maximum economy of production;

(*b*) railway freights are incomparably higher than sea freights, so that the up-country producer is hampered in obtaining a wide field for his products and at a great disadvantage in the export market.

2. No general reduction of railway freights may be possible unless railways are to work at a loss to benefit indigenous industries which is not conceivable but improvement in minor ways might be feasible. The questions involved are, however, too intricate for me to approach. I would, however, suggest for consideration in the case of long leads, application of the sliding scale of rates throughout according to the length or lead irrespective of the railways over which the goods pass. At present an article to reach its market may have to travel say 600 miles passing over say 3 different railways. If it gets the benefit of a long distance rate on one, it will have to pay a comparatively high rate on account of "short lead" on one or both of the other lines. A modification which would be of great benefit would be to apply to all products the benefit of a uniform sliding scale according to distance from starting point to destination.

### ORAL EVIDENCE, 12TH NOVEMBER 1917.

*President.*—*Q.* You say in the first paragraph of your note that you are in favour of encouraging private search for mineral deposits by granting greater facilities to *bonâ fide* and competent prospectors, whether individuals or companies, and think this could best be done by resuscitating the old form of exploring licence in an amplified form. You are aware of the new regulations for granting of certificates of approval?—*A.* Yes.

*Q.* You know that any person with a certificate of approval can ask for a prospecting licence for the area which he is to prospect?—*A.* Yes, but the area for which he can apply for a prospecting licence is very limited.

*Q.* But at present he is able to go and search anywhere he likes without a licence?—*A.* Yes, but if he finds anything, he is followed by other people who seek to benefit by his efforts.

*Q.* But he is first in the field?—*A.* He is, but he can merely walk across the country and only goes along to register his application for a prospecting licence after he has found what he was looking for or something else, possibly some time after, if he is remote from the registering centre. Meantime he is followed up by other and much less intelligent people who are likely to benefit as quickly as he is though he might perhaps have been looking for five years for a particular thing.

*Q.* The exploring licence gave you no protection?—*A.* No, it did not. That was my objection to the old exploring licence. I think the old exploring licence would have been quite good, provided it were slightly amended by giving certain definite rights for a limited period.

*Q.* Limited period or limited area?—*A.* Area, I think, must, of course, be limited. But it should, I think, be very wide. It depends greatly upon what the mineral searched for is.

*Q.* What area do you think should a man get under an exploring licence?—*A.* Well, he might be given 10 square miles or 100 square miles according to what he was looking for.

*Q.* But you get that under the present prospecting licence or mining lease?—*A.* You should give him a very much larger area than 10 square miles under exploring licence.

*Q.* How much area should be given for an exploring licence?—*A.* I would not put anything definite in the rules.

*Q.* You may have an area divided up between two explorers, one in Madras and the other in Northern India. You cannot protect them unless you give them a definite area?—*A.* You cannot. Probably you can fix an area, say, of a couple of hundred square miles. It all depends, of course, upon the nature of the country and the mineral sought.

*Q.* You mean to say that if you are given a licence for 200 square miles, you would not allow trespassers on that 200 square miles?—*A.* Yes.

*Q.* For how long? Would five years be a reasonable time to explore 200 square miles?—*A.* A year would probably be sufficient.

*Q.* That does not allow much for competition. Does it?—*A.* No.

*Q.* Do you keep everybody else out of that 200 square miles whether you wanted to explore or not?—*A.* Yes, for the period of the licence. If one did not want to explore one would not apply for a licence. Before you get an exploring licence at all you should have to demonstrate that you are acquainted with exploring business and that you have got the means to do it.

*Q.* But if you have an exploring licence for 200 square miles, you could not make provision for supervision and examination and probably would find it sufficient to apply for a more limited area.—*A.* You could then do without a licence at all.

*Q.* Your objection is that somebody else is benefitting from what you are doing?—*A.* Quite so.

*Q.* Exploring is very different from prospecting?—*A.* Of course, that is the point. The holder of a prospecting licence is protected, but before he has acquired enough information to define the area required for a prospecting licence, he is not protected at all, and his exploration work may have disclosed enough to enable another to lodge a prior application. The mere fact of a well known prospector exploring an area is sufficient to attract "jackals."

*Q.* Immediately you satisfy yourself by exploration that an area is worth taking up under a prospecting licence, you can go up to the Government to get a prospecting licence for an area up to 10 square miles. That surely is quite enough?—*A.* Yes. If benefiting by your work some one else has not applied first.

*Q.* Do you know of any other country where any better facilities are granted?—*A.* I cannot say I do.

*Q.* I don't know of any either. You can get a certificate of approval for an area in the first year; you are probably not likely to want a certificate in the second year.—*A.* There may be dozens of other "Certificates of approval" for the same General Area. A certificate of approval is no protection. My particular reason for wanting an exploring licence in standard form was particularly in regard to exploring in Native State territory.

*Q.* The rules do not apply to Native States?—*A.* But it would be a great advantage if the exploring licence in standard form was available to Native States to form a basis for their own negotiations with applicants.

*President.*—We are not dealing with Native States; we are dealing with the question in British India.

*Sir F. H. Stewart.*—*Q.* In dealing with the question of industrial enterprises in paragraph 4 of your note, you say "I am not in favour of a central purchasing agency for Government departments, but am in favour of advisory officers or boards connected with the several testing houses above suggested to advise Government officials as well as the public on various productions and whose certificates of merit should be authoritative". Lower down you say "local markets are generally inadequate to maintain an industry on a scale large enough to ensure the maximum economy of production." Would it not be an advantage to have a central purchasing agency so as to gather all Government requirements together in one centre and so offer a market big enough to warrant a manufacturer to organise work?—*A*. I do not quite follow. If it is intended to "gather all Government requirements together in one centre" and then redistribute them, I should think it would be a great disadvantage. An article might be collected from Bombay at Delhi and sent back to Poona involving double railway freight. The "Central Purchasing Agency's" functions would be better met by a Central Bureau to disseminate information regarding products and prices to local agencies or Government officials leaving them to make their own selection.

*Q*. What I mean is that if local manufactures in India itself are properly assisted by railway transport facilities, it does not debar you from selling your materials either through a central agency or through other agencies?—*A*. Not, if there are other agencies. My understanding of the intention of a central Purchasing Agency was that it would control all Government purchase, large or small, of whatever nature.

*President*.—*Q*. What is your objection to a central purchasing agency?—*A*. As regards a Central Purchasing Agency, my objections to such are:—(1) Intelligent business is, I think, best promoted by bringing the actual consumer and the manufacturer into contact—not by separating them by an intermediary. Thus the manufacturer learns the varying requirements of the consumer at first hand and the consumer is in a position to discover in what ways the manufacturer can adapt his products to differing circumstances. (2) By purchasing through a Central Agency, the indenting officer is apt to lose interest and initiative since the responsibility is off his shoulders, with consequent loss of economy. (3) Any Central Purchasing Agency in India must be remote from most centres of industry—consequently valuable time is lost in arranging business,—transmitting indents, references and explanations. On the other hand I am in favour of a Central Bureau for the purpose of promoting indigenous enterprise by means of:—(i) Collecting and publishing information to Government departments and to the public about indigenous industries, the quality and prices of products, etc. (ii) Assisting buyers and sellers to become acquainted. (iii) Acting as a sympathetic intermediary between manufacturers and other Government departments, for instance, the Railway Board in regard to special freight facilities. (iv) Advising prospective promoters in technical matters connected with industrial ventures. (v) Generally advising other Government departments, local officers, etc., in respect of concessions and facilities applied for, with a view to assisting promotion of industries in suitable localities and in a manner most likely to prove successful. The tendency of industries is to become gregarious, *e.g.*, B sees his neighbour A making a good profit on cotton ginning and forthwith applies for a concession of land to erect another factory at A's doorstep irrespective of the market or needs of the district with the result that neither works profitably and one or both fail to the detriment of both and the discouragement of industrial promotion. It would be the province of the Bureau suggested to criticise the application of B on a reference from the local authority with a view to (1) protecting the established interest of A, (2) suggesting a more promising location for B's enterprise, and (3) recommending B's application if the requirements of the district warranted it or A was taking undue advantage of his exclusive position. Such a Central Bureau would require a Central Testing Department with a staff of highly trained scientists: (1) To test the quality of the indigenous products, regarding which information was published under the *aegis* of the Bureau. (2) To examine and advise on projects submitted. (3) Generally to undertake research work with a view to the inception of fresh indigenous industries either by Government or by private enterprise with or without Government assistance in other ways. Inasmuch as the purely routine work of such a Central Testing Department might soon be expected to become too great and much time must be lost in the transit of materials for testing and correspondence relative thereto between outlying stations and the central office, I suggest the utilization of the existing technical colleges and institutions in each Presidency to deal with such under the general supervision of the Central Bureau.

*Hon'ble Sir R. N. Mookerjee*.—*Q*. In the matter of railway facilities you say "A modification which would be of great benefit would be to apply to all products the benefit of a uniform sliding scale according to distance from starting point to destination". Is there not a sliding scale now? *A*. There is, of course, a sliding scale, but it does not apply to all commodities. The point I had in view was this. Where we have to send materials over one line, we get a rate according to distance. If they have to be sent over more than one railway, then we have to pay a higher rate over each railway.

*Q*. Has this suggestion you make been brought before the Railway Board.?—*A*. Yes we brought it up

*Q*. **With what result?—*A*. They did not approve it. As a matter of fact I have got my letter to the Railway Board here on the subject.**

*Q*. Have you got the official answer?—*A*. I have the official answer, but not here.

*Q*. Would you send in copies* to the Secretary?—*A*. Yes.

*Mr. C. E. Low*.—*Q*. In mineral industries, in paragraph 9 of your note, you suggest the appointment of Government officials to advise as to methods of working with a view to prevent wasteful methods. Is it not probable that the method which he advises would be more expensive?—*A*. I think it is very likely.

*Q*. Under the circumstances do you think that his advice is likely to be taken?—*A*. I am inclined to think that in granting a mining lease it would be an advantage if there was a condition that deposits should be worked under proper up-to-date control.

*Q*. Do you think it should be a condition of the lease that the lessee should comply with the advice given by any Government expert staff?—*A*. I think so.

*Q*. You would carry that further in connection with coal, for instance?—*A*. I think in the case of coal it is rather difficult.

*Q*. It has been put to us that the method adopted at present in the Bengal coal fields are in themselves wasteful, both in the extraction and in the manufacture?—*A*. I cannot speak of Bengal, I have no experience of that province.

*Q*. You suggest that arrangements might be made to give to students passing out of technical colleges six months' actual works practice in the country as part of the course of training. Do you think that a manager of works will be willing to allow them to have that works practice?—*A*. I am speaking from my own experience. I have already two boys from the colleges and given them six months' training.

*Q*. In the cement works you were speaking of?—*A*. We have also had two in our laboratories at our mines.

*Q*. Have you any reason to suspect that managers would not take into their works boys from colleges because there are trade secrets? Do you think that is likely to be frequent?—*A*. I have no trade secrets and I have no objection.

*President*.—*Q* Do you recognise there are certain classes of industries where trade secrets do exist and where it would not be possible absolutely to make them available but it would be possible to ascertain from those manufacturers whether they would be willing to train up boys under a fee system? Have you experience of that sort?—*A*. I am sorry to say that my experience of taking boys from colleges has not been very favourable because scholars when they leave the technical college generally happen to be swollen-headed and think that they know everything. I think the instruction given is quite good but training is required to make pupils understand that they are at the beginning—not the end of the journey when they leave college. We had two men direct from college who were failures as they thought they knew too much to learn more. A third of a different temperament who had had twelve months' experience after leaving college was more successful.

---

Dated Bombay, the 7th December 1917.

From—F. A. H. East, Esq., c/o. Messrs. Killick, Nixon and Company;

To—The Secretary, Indian Industrial Commission.

In reply to your favour No. 4156,† I have the honour to enclose herewith copy of the letter addressed to the Railway Board and a copy of their reply to which I referred in my oral evidence before the Commission.

2. It will be noted that we did not actually put before the Railway Board the general question of application of the sliding scale of rates according to distances and commodities irrespective of the different lines over which the goods pass. Our letter referred to a specific instance in which lime from our works at Lakheri, Bombay, Baroda and Central India Railway, having to pass over the Agra-Delhi Chord which is worked by the Great Indian Peninsula Railway, we were consequently unable to get the benefit of the lowest rate on either the Bombay, Baroda and Central India Railway or Great Indian Peninsula

---

*Appended.

†Not printed.

Railway, which would have applied had the material passed over the same total length of lead on the Bombay, Baroda and Central India Railway. This specific case was the primary cause of the suggestion in my evidence, but the disadvantage has been felt in other cases, for example in the conveyance of our products, *viâ* Bombay to places on the Great Indian Peninsula Railway and in transporting our materials to places on the North-Western Railway. Whenever change of ownership in the line occurs, the rates applying to the length of lead on each railway according to that railway's tariff comes into force. The appended examples will make the point clear.

3. The case of Poona is particularly interesting. Bundi hydraulic lime was required for the Nira Right Bank Canal but a less suitable substitute had to be used because of a difference of about Rs. 2 in cost delivered, the short lead charge on the Great Indian Peninsula Railway killing the business.

4. In dealing with goods like lime and cement which, while of great importance to the development of the country, are of considerable bulk and of low intrinsic value, the question of freight regulates to a great extent the range of market. When it is recognised that railway freight for 700 miles even at the minimum rate is equivalent to the *pre*-war steamer freight from England the importance of the matter to indigenous industries when it comes to competition will be evident. Economy of manufacture can unfortunately in most cases only be secured if a large quantity is turned out so that the limitations imposed by railway freight have a serious influence on the economical production of materials like those abovementioned.

I trust the matter will receive favourable consideration.

*Lakheri to Poona.*

| | Miles. | Rate per md. Rs. | a. | p. | |
|---|---|---|---|---|---|
| Lakheri to Dadar, B. B. & C. I. Ry. ... | 602 | 0 | 5 | 6 | |
| Dadar to Poona, G. I. P. Ry. ... | 113 | 0 | 1 | 11 | (plus a terminal of Rs. 1-8-0 per wagon). |
| | 715 | 0 | 7 | 5 | = Rs. 12-10-0 per ton |
| On B. B. & C. I. Ry. scale... ... ... | | 0 | 5 | 10 | ,, 9-15-0 ,, |
| | | | | | Rs. 2-11-0 |

*Lakheri to Lahore*

| | Miles | Rate per md. Rs. | a. | p. | |
|---|---|---|---|---|---|
| Lakheri to Muttra, B. B. & C. I. Ry. ... | 164 | 0 | 2 | 1 | |
| Muttra to Delhi, G. I. P. Ry ... | 90 | 0 | 1 | 1 | |
| Delhi to Lahore, N.-W. Ry. ... | 297 | 0 | 3 | 6 | |
| | 551 | 0 | 6 | 8 | = Rs. 11-5-6 per ton. |
| On the basis of minimum, B. B. & C. I. Ry. scale. ... | | 0 | 5 | 1 | = ,, 8-11-3 ,, |
| | | | | | Rs. 2-10-3 |

Copy of letter No. BHL1/2028, dated the 18th December 1914, from Messrs. Killick, Nixon and Company, Agents, The Bundi Hydraulic Lime and Cement Company, Limited, to the Secretary, Railway Board, Simla.

*Railway freight on lime from Lakheri, Bombay, Baroda and Central India Railway, to Delhi*

We have the honour to bring the following to your notice and to ask for a ruling on the matter.

We are at present quoting for large supplies of lime from our works near Lakheri, a station on the Bombay, Baroda and Central India Railway (Nagda-Muttra Section), to the Engineers in charge of the Imperial City Works at Delhi.

In doing so we find ourselves placed at a serious disadvantage as compared with competitors at Katni and Sutna owing to the refusal of the Great Indian Peninsula Railway to quote the same rate of freight over the Agra-Delhi Chord for lime traffic emanating from the Bombay, Baroda and Central India Railway system as they quote for lime traffic emanating from their own system.

For lime from Lakheri they quote over the Agra-Delhi Chord 4 annas per wagon mile (·141 pies per maund per mile). For lime from Katni their rate works out at ·115 pies per maund per mile. They admit the lower rate is quoted in competition with another railway (presumably a Government one), but we fail to see why we should be prejudiced on this account.

We may state that the Bombay, Baroda and Central India Railway have offered us every possible facility for the transport of our goods over the metre-gauge route *viâ* Sewai Madhopur, but owing to there being no metre-gauge from Delhi Sadr to the Bara Kumba Imperial Delhi Depôt this does not materially assist us.

The point we have the honour to submit for the consideration and ruling of the Railway Board is whether the Great Indian Peninsula Railway, as workers of the Agra-Delhi Chord on behalf of Government, can exercise undue preference in favour of traffic emanating on its own line as against traffic originating on the Bombay, Baroda and Central India Railway line. So far as the Agra-Delhi Chord is concerned, it is immaterial whence the traffic originates.

We have reason to believe that the Great Indian Peninsula Railway's action in this matter is opposed to the spirit of the agreement with the Secretary of State under which other railways may exercise running powers over the Agra-Delhi Chord on the same terms as the Great Indian Peninsula Railway.

The Bombay, Baroda and Central India Railway would, we may say, be quite willing to allow us the one-tenth pie per maund rate and to forward our line *viâ* Bayana, Agra and the East Indian Railway route to Delhi, and this we could do if the Railway Board would allow the same distance for charge over the East Indian Railway from Agra to Delhi as over the Agra-Delhi Chord.

In the event of the Railway Board not upholding our contention in regard to the rate over the Agra-Delhi Chord *viâ* Muttra we would ask that our second proposal to sanction the reduction on the distance charge on the East Indian Railway from Agra to Delhi may be sanctioned.

---

Copy of letter from the Railway Board, No. 368-T., dated Simla, 19th March 1915, to Messrs. Killick, Nixon and Company, Agents, The Bundi Hydraulic Lime and Cement Company, Limited, Bombay.

In continuation of Railway Board's letter No. 9-T., dated 2nd January 1915, I am directed to state that the Board have carefully considered your representation regarding the rates for lime charged by the Great Indian Peninsula Railway over the portion of the Agra-Delhi Chord line from Muttra junction to Delhi as a part of the through rate quoted from Lakheri to Delhi. This through rate works out to Re. 0-3-0 per maund as compared with Re. 0-4-11 per maund from Katni Marwara to Delhi and the Board have come to the conclusion that all things considered this rate is not an unreasonable one.

As regards your charge of undue preference on the part of the Great Indian Peninsula Railway in favour of traffic originating on their own line, the Railway Board are of opinion that no such undue preference appears to be either exercised or contemplated by that Railway owing to the quotation by them of the rates over the portion of the Agra-Delhi Chord line to which you allude, nor can they find that the action of the Great Indian Peninsula Railway is in any way opposed to the spirit of the agreement with the Secretary of State under which the Bombay, Baroda and Central India Railway have been given running powers over that line. Moreover, the Railway Board understand that the Great Indian Peninsula Railway are prepared to consider the question of reducing the rates further if you will show them that the existing rate over the Agra-Delhi Chord debars Lakheri lime from entering Delhi and competing with that from elsewhere but that you have not so far been able to do this.

2. With reference to the last paragraph of your letter of the 18th December 1914 I am to say that the East Indian Railway are already permitted to reckon the mileage between Agra and Delhi *viâ* their route as equivalent for purposes of charge, to that *viâ* the Agra-Delhi Chord Railway route.

## WITNESS No. 280.

**MR. N. B. SAKLATVALA**, *Partner in Tata, Sons and Company, and representative witness of the Bombay Millowners' Association.*

### WRITTEN EVIDENCE.

I confine my remarks to what pertains to the mill industry only.

*Q.* 1. Our firm has at no time found the least difficulty in obtaining from the public as much capital as was necessary either to start new mill companies or to strengthen the position of their existing mills.

The public in India, specially in Bombay, are ever ready to put in their money in mill concerns started by individuals or firms who have a reputation for honesty and efficiency, and who have had a good deal of mill experience.

Government assistance.

*Q.* 5. Government aid is hardly necessary for the mill industry, which has by this time been well established all over India; but it is necessary for such other industries as have great possibilities of success owing to some natural advantages, but which owing to foreign competition are not in a position at the start to make any headway.

This help may be given in a variety of ways, *e.g.*, (1) There may be a certain import duty levied for at least a number of years on imported articles. (2) The articles used for the industry may be imported duty free. (3) Exemption from income-tax. (4) Guaranteed or preferential Government purchase.

Pioneer Factories.

*Q.* 7. There are certain industries in which Government help in this direction would be indispensable, as for instance *ship building*, and the manufacture of electrical goods (including motors, cables, wires, lamps, etc.), also making of mill machinery and production of coal tar colours. Great technical skill and a large amount of capital are required for these, and private enterprise is not likely to take the initiative in such industries.

*Q.* 15. I have no personal knowledge or experience of technical and scientific aid provided by Government. I venture, however, to think that scientific researches by Government Departments might be of service to the textile industry in the dyeing and finishing departments, provided the results of such researches are made public from time to time, and provided the Government experts are available for consultation on a reasonable fee.

Exhibitions.

*Q.* 31 and 32. It cannot be denied that exhibitions have a great educational value. Government should hold or encourage such exhibitions. The exhibitions should be held in the principal cities of a Province in turns at certain intervals, and facilities in the shape of cheap railway fares should be provided to enable people from surrounding districts to visit the exhibition.

*Q.* 33. The exhibition should show not merely the finished products, but the intermediate stages, and the processes through which the product passes. Cinema pictures of the processes would be a very great help in this direction. The products, etc., shown need not merely be those pertaining to a new Indian industry, but should also be of industries not yet in existence in India, but which can be introduced in the country.

*Q.* 44. I am strongly of opinion that the want of primary education among mill operatives hinders industrial development to a great extent, and that it is one of the main reasons why a country like Japan has outstripped us in the race for industrial progress.

*Q.* 44a. It does. Education improves the faculties and the inventive powers, besides providing a means for the acquisition of further knowledge of the subject.

**Q.* 45. In order to improve the efficiency and skill of the workmen employed in the mills it is necessary to take measures to attract a better class of men to the work, and also to offer sufficient inducement to the operatives to remain for a long time attached to their factory. The great skill of the workman in the mills in England is due to several generations of people having followed the craft from sire to son. This, in present circumstances, is unattainable in India, as the Indian operative has usually two strings to his bow, and follows two occupations. In certain seasons he works in a factory, and at other times he returns to his native village to pursue agriculture. Again, the absence of concerted action on the part of the millowners gives facility to the operatives to change their masters and to roam from factory to factory, if the discipline in any one of them is not to their taste. Thus, a great impediment to steady work and the acquisition of skill and efficiency is the shifting habit of the operative, and to cure him of this he should be given better education, his surroundings inside and outside the mills should be made healthier and better, and he should be put in the way of earning higher wages with improving skill. Some of the ways in which the lot of the operative can be improved and his work made sufficiently attractive to draw also better class of men to it, are mentioned below :—

1. Sanitary chawls at moderate rents.

---

*NOTE :—Witness wished it to be understood that his remarks regarding the "Labour" question in his oral as well as written evidence represented his own personal views and not the views of the Bombay Millowners' Association.

2. Abolishing the drinking habit among operatives.
3. Co-operative system of giving credit, and thus diminishing the operatives' indebtedness to sowcars who charge exorbitant interest on loans.
4. Starting of free dispensaries for men and their families.
5. Starting of provident and pension funds and provision for insurance against accidents.
6. Opening of grain shops.
7. Accommodation and care of children when the mothers are employed in the factory.
8. Primary education among factory children.
9. Education of workpeople by means of lectures, and the dissemination of elementary literature.
10. Bonuses for regularity and good work.

Apprenticeship system.

*Q.* 46. The mills under Messrs. Tata's control make a special feature of training apprentices for various departments of mills, and I think we have gathered experience in this line which no other Indian mill has done to the same extent.

We have three grades of apprenticeship—

1. Graduates in Arts—Graduates enter the service on a five years' agreement, and start with a salary of Rs. 50, which at the end of the term rises to Rs. 125.
2. Technical Graduates—They also begin with an agreement of five years. The starting pay is Rs. 35 which during the five years' period rises to Rs. 75.
3. Students who have passed the matriculation examination. These start on a salary of Rs. 25 and rise to Rs. 45 in five years.

Almost all our managers, heads of departments, and other officers, are drawn from one or the other of these grades. The training given to them is both practical and theoretical, and, in time, we find them to be of great value to our mill companies. We always have a number of such men in training, and whenever there is a vacancy we have no need to call in an outsider; we take up for the post one of the apprentices trained according to our methods, and thus there is a continuance of our policy.

Sir Bezonji Dadabhai, the manager of our Nagpur Mills, has given you full particulars, with copies of our agreement forms, so I do not send these myself.

Industrial schools.

*Q.* 47 and 48. The training in industrial schools, though excellent, is bound, by its nature, to be somewhat defective, as these schools cannot reproduce the conditions and atmosphere of an actual working factory. The knowledge imparted is more theoretical than practical. The machinery that they have is insufficient, and it cannot be otherwise. Pupils taken from industrial schools have to be again entered as apprentices in our mills.

*Q.* 49. We have not had any night schools. Day schools for short timers, *i.e.*, for children, have been tried, but they are failures. When the body is fatigued, the mind does not work.

Night schools are unsuited for children; for grown-up operatives there is the same difficulty of fatigue and the consequent disinclination for mental work. Besides, in the adults, the frittering away of leisure hours in idleness has become a confirmed habit. Most of them, being illiterate, have no ambition to improve their faculties.

Again, as the hours of work are from sunrise to sunset, or at least 12 hours per day, the operatives must go to bed early to rise early. Night schools succeed best in countries where there is a basis of widespread primary education, and where the hours of labour are shorter.

*Q.* 52. The Bombay Textile and Engineering Association supplies, in Bombay, a long-felt want. If its scope is widened by some sort of Government aid, it would improve still further its utility for the class of superior officers of mills for whom it was started.

Mechanical engineers.

*Q.* 54. Engineers trained in our own mills at Nagpur, and holding the Central Provinces certificates for mechanical engineers, are not recognised by the Bombay Administration. Such anomalies should be removed, and the tests in various places be made as uniform as practicable.

Even in the same centre the examination papers set are sometimes very easy and sometimes very difficult, and there is no standard to go by. This is due to the faulty system of not publishing the examination papers. If the papers were published, as is done in all University examinations, the test would be more uniform, and there would be a sort of control on the vagaries of examiners.

Adulteration.

*Q.* 91. The adulteration of cotton has been for a number of years engaging the attention of millowners without their being able to suggest an effective remedy. The adulteration is carried on in various ways by the mixing of seeds, or *kapas*, or cotton. The whole trade is aware of these goings on, and Indian mills and Continental and Japanese exporters buy this mixed stuff with their eyes open. Pure cotton from the district of its origin is a rarity in the Bombay market, and it is safer to buy on the spot, in the districts where the cotton is grown, and to gin and press it under one's own supervision. There are many examples of whole districts which have deteriorated in the quality of their cotton, until they have lost their reputation for their finer grades and have become of secondary importance. The idea underlying the action of the cultivators and merchants is the facility for the disposal of the stocks afforded by cheaper stuff which is more easily saleable. Many years back Government enacted a law making it penal to adulterate cotton, but they found the remedy worse than the disease and gave it up.

Trade marks and trade names.

Q. 94. The evil of copying trade marks and trade numbers goes on with impunity. Government should give protection to trade marks by giving facility for registering them, and the same should be done, under special circumstances, with numbers. The Millowners' Association of Bombay has a system of registration of the trade marks of its members, but this has a limited scope, and I would like to see registration made universal for all trades.

Railways.

Q. 97 and 98. With a greater expansion of the railway system over the country than there is now, there would be greater facilities for moving the raw material and the finished goods from and to every nook and corner of the land, and this no doubt would be a distinct advantage to commerce. The present lack of waggons has disorganised trade to a great extent. Owing to sea-borne freights being unavailable, and owing to waggons being required for Government purposes, Indian mills have more than once been on the verge of a total stoppage for lack of coal. This is a serious menace and the sooner the problem of coal supply is tackled with a little more skill and energy than has been hitherto displayed, the better it will be for the thousands of workpeople who are engaged in the mill industry.

Shipping freight.

Q. 101. The Bombay mill industry has for years suffered from an unequal fight with Japan, over sea freights. Japan, as is well known, carries cotton from India at a cheaper rate and to a much greater distance than do Indian mills their yarns to China. This can hardly be helped, as Japan has its own line of steamers and can command the situation. The Bombay millowners have to thank themselves for this state of affairs as they were short-sighted enough not to grasp the opportunity when one was offered them about twenty years ago.

Q. 105. As far as it concerns the textile industry, I would suggest that Government should make experiments with a view to determine which wood, from among the immense varieties grown in India, is most suitable for turning out bobbins of various kinds used in mills. Japan has made much headway in this direction at a time when the European import of this article is much restricted. I believe this line may be developed without much cost, and is one that may easily be retained when normal times prevail.

Wood pulp for making paper of the very coarse texture which is used in mills is another item in the direction of which a little energy may be expended with advantage.

Q. 110. After the war there are bound to be offered many openings where our textile trade may find outlets for the sale of its goods, especially in countries where the Germans had a firm hold with their medium quality of goods. I admit it is more the duty of mill-owners than of Government to exploit these markets, but this is one channel in which trade may, to a certain extent, be helped by governing bodies.

British Consular reports on yarns and piece-goods are published in England, and they mainly concern themselves about British manufactures. Such reports should be published by Government in India also, and copies be supplied to all newspapers. His Majesty's Consuls in various parts of the world should be asked to see and report on what facilities there are for the development of trade in Indian piece-goods and yarns in foreign countries.

Freights on Indian manufactures shipped to China and other countries should be considerably reduced, and India should thus be given a chance to fight on equal terms with her formidable rival, Japan.

After the war if there is any preferential treatment to be given to the imports of British manufactures in any foreign country, the same should be extended to India also.

Government requirements of cloth for Army clothing, for hospitals, for tents, etc., should, as far as possible, be taken from Indian mills.

Government should have some research work done for the improvement and development of indigenous dyes and chemicals.

If a Commission like the one sent by the Madras Government to Russia were sent from time to time to different countries it would be a distinct advantage. The idea should not merely be to find outlets for goods, but also to assimilate the best methods of business prevailing in the different countries.

Q. 111. If a small beginning is made there are many new industries which may with advantage be started here. I can think of the following.

Shipbuilding in time may develop to an immense extent with advantage to the country and the Imperial Government also. I make bold to throw out this suggestion, as India is now in a position to make its own steel. I am quite aware of the great difficulties in the way, but surely by slow degrees and at easy stages much may be achieved in time.

The building of machinery and machinery parts relating to the textile industry should prove a success as the products would find a ready market here. It would not be very difficult to start making looms and cotton gins. I append a list of articles in common use in textile mills. Some of the articles from among them could easily be picked out, and their manufacture taken in hand. Some of them, which are already being made, should be examined with a view to bringing them near to perfection as far as possible.

A greater impetus should be given to the starting of more cotton-seed-oil mills. My firm has had some experience in this line. Our experimental factory did not turn out a success, but the reasons for this had nothing to do with the industry itself. I am convinced that with a good plant, in the hands of capable experts, good results can be shown. The chances of success would be greater if in time all the products were to find a market in India, which they easily can do, and the higher by-products are produced by scientific methods by chemists of proved ability.

Q. 112-b. The improvement of Indian cotton, both as to yield and as to quality, has of late been engaging the attention of all who are interested in the subject. That there is a vast scope in both these directions cannot be denied. With the growing requirements of cotton all over the world, and with the wild fluctuations in prices in the American crop, the growing of more and better cotton within the British Empire becomes of greater importance every day. I must admit that the Government of India, the local Governments of provinces, and even the Native States, have not been idle; and experiments on a fairly extensive scale are being carried out for growing better stapled cotton and one that is free from admixture of indigenous varieties. I have knowledge of Government's great activity all over the country; but what I regret is that much of their exertions are nullified by the growers' innate proclivity to mix up seeds with the *deshi* stuff in order to lessen prices. I believe the growth of Cambodia cotton at one time promised brilliant results, but the cotton has by degrees sunk to such a level that all sorts of good and bad stuff have come to pass under this name. The experiments with American seeds in Sind and the Punjab have so far given encouraging results, and the pioneering work done by the respective Governments is laudable. The British Cotton Growing Association have their eye on these tracts of land, where they consider, and rightly too, that the growths of these districts should yield results which may, in time, to some extent, solve the Empire problem of growing cotton for its own requirements within the Empire. Some of the Bombay millowners have also formed a syndicate for buying *kapas* grown from American seed in Sind, and ginning it at their own factories, thus encouraging farmers to go in for the growth of long-stapled cotton. A great authority like Professor Todd considers that India presents the best opportunity of growing cotton of finer quality suitable for Lancashire mills, and he is strongly of opinion that exertions in this direction would yield speedy results. I think that if cotton is grown on more scientific bases in suitable districts, if more use is made of fertilizers, more care taken in ginning and pressing, and strict watch kept over adulteration in any shape, India can very easily regain its place in the cotton world and be of the greatest help to the textile industry of the Empire and incidentally to itself.

### LIST OF ARTICLES IN COMMON USE IN TEXTILE MILLS REFERRED TO IN THE ANSWER TO QUESTION 111

No. 1.

Asbestos Boiler Composition.
  ..  Fibre.
  ..  Sheets, White.
  ..  Yarn.
Bale Studs.
Banding Card (assorted).
  ..  Hemp and Coir Rope.
Belt Hooks (for Compensation Belts).
Belting, Hair (assorted).
  ..  Leather (assorted).
Bobbins of all kinds.
Brushes, Banister.
  ..  Card (assorted).
  ..  Painting (assorted).
Cans Doffing (assorted).
Cans Oil Feeder.
  ..  Weft (assorted).
Card Can Bottom and Top Rings.
Cement Steam Joint.
China Clay.
Corn Starch.
Emery Cloth and Sand Paper.
  ..  Powder.
Epsom Salt.
Farina.
Fillet Emery.
  ..  Doffer, etc.
Grease, Hard Fibre.
Healds (assorted).
Heald Card.

Heald Varnish.
,, Yarn.
Hose Pipe, Canvas (assorted).
Oils for lubricating.
Paper, Blue Casing.
,, ,, Facing.
,, Brown Casing.
,, ,, Top.
,, Water-proof.
,, White Tissue.
,, Union Hession 6 X quality.
,, ,, ,, 7 X quality.
Pickers Buffalo.
,, Drop Box.
Picking Bands.
Plumbago Powder.
Reeds.
Reed Hooks.
Roller Skins.
Rosin.
Rubber Sheet, Canvas.
Shuttles.
Steel combs.
,, hoops.
Straw Board.
,, ,,
,, ,, Sheets.
,, ,, ,,
Tallow.
Tape, Cotton.
Travellers Ring, heavy (assorted).
,, ,, light (assorted).
Weighing Scales.
Whiting.
Zinc Chloride.

No. II.

Alum.
Carbonate of Soda.
Chalk, French.
,, Red.
Foot Rule.
Metal Polish.
Paint, Enamel.
Plaster of Paris.
Prussiate of Potash.
Salamonia.
White Metal.
Angle Iron (assorted).
Brass, Bar (assorted).
Bar, Copper (assorted).
,, Iron (assorted).
,, Steel (assorted).
,, Mild Steel (assorted).
Bends (assorted).
Bolts with Nuts and Washers (iron), assorted.
Bolts with Nuts and Washers (galvanized), assorted.
Buckets.
Copper Washers (assorted).
Couplings (assorted).
Files (assorted).
Iron and Wire Nails.
,, Nuts (assorted).
,, Washers (assorted).
Pipe, Brass (assorted).
,, Copper (assorted).
,, Navigation India Steam (assorted).
Plate, Brass (assorted).
,, Iron (assorted).
,, Tin or Double Tin.
,, Galvanized (assorted).
,, Zinc.
Rivets, Copper (assorted).
,, Iron (assorted).
,, Galvanized (assorted).
Sheets, Iron and Zinc perforated.
Screws, Brass (assorted).
,, Set (assorted).
,, Coach (assorted).
,, Galvanized (assorted).
,, Iron (wood) (assorted).
Tacks (assorted).
Wire, Brass (assorted).
,, Copper (assorted).
,, Steel (assorted).
,, Iron (assorted).
,, Lead (assorted).
,, Copper Gauge (assorted).
,, Netting (iron and galvanized).
Pick Axes.
Pliers.
Punches.
Scissors.
Shovels.

## NOTES ON CALICO PRINTING IN INDIA.

At the outset I must confess that my experience of this industry consists merely of the investigations that our firm carried out some three years ago with a view to test the possibilities of starting a calico printing works near Khapoli about 80 miles from Bombay where the Tata Hydro-Electric Company's Power Station is situated and where an abundant supply of water would be available.

India is perhaps the biggest market in the world for printed goods. As is well known hand-printing has existed in this country for centuries, and even to-day this handicraft is carried on to a considerable extent all over India. But, as far as my knowledge goes, no serious attempt has been made here to start factories on a commercial scale with a view to turn out such goods as would be able to compete on successful terms with the stuffs imported from Europe. The few works which do exist are affiliated to spinning and weaving mills, and this trade is carried on more as a side line than as a business by itself. No attempt has been made to develop this industry by a concentration of energy and an adequate sinking of capital by any enterprising firms in India to such an extent as the importance of this trade deserves.

An interesting problem is furnished for study by the fact that although the spinning and weaving industry has been in existence here for over half a century, and although great developments have taken place during the last decade in the dyeing and bleaching trade, capitalists have so far given a wide berth to calico printing even though an extensive market for the goods is at their very doors.

The main causes which have led to this line being so much neglected may be summarised as follows :—

(1) The chances of success for calico printing depend on starting the factory on a fairly big scale. A large amount of capital is necessary, say Rs. 25 to 30 lakhs, in order to make the scheme a success; and in addition a further sum of Rs. 10 to 15 lakhs would be required for trade purposes. A trial plant on a small scale would be foredoomed to failure. It is also necessary to provide expert supervision in the different departments, such as general management, machine printing, colour mixing, finishing, etc., without which no great headway could be made. Then again, unless new patterns are constantly supplied and new lines are exploited from time to time there would be but poor chances of an adequate return on the capital outlay. This, of course, entails the upkeep of a staff of expert designers, chemists, etc., who can create and launch new fashions in designs and colours, and the company should also be prepared to sacrifice from time to time the costly engraving blocks of the designs that have gone out of fashion. This again means a large capital.

(2) In Bombay, which is the great centre for new industries in India, one of the principal handicaps is scarcity of cheap and suitable water. This industry requires an abundant supply of water. I am told that 30,000 gallons of water are required for every ton of cloth, and as in Bombay 1,000 gallons cost 8 annas, the water bill ought to be a serious item.

(3) The last but most serious obstacle to the development of this industry in India is that this country has not yet reached the stage of turning out in sufficient quantities cloth suitable for printing. Such cloth requires to be made of finer textures than the usual run of cloths in Indian mills. The fine cloths that the Indian mills turn out are mostly not fine enough, nor nice looking enough, for printing purposes, that is, for producing prints fit to compete with the English and Continental manufacturers. They serve well enough for the old stereotyped patterns of the hand-printing establishment. Whether it would pay to buy English grey cloth and then take it through the printing process is doubtful, but the margin of profits would necessarily be curtailed.

### ORAL EVIDENCE, 12TH NOVEMBER 1917.

*Mr. G. A. Thomas.*—*Q.* In your answer to question 5 (second paragraph), you say, " This help may be given in a variety of ways " and in the second way you say, " The articles used for the industry may be imported duty free." By " articles " do you mean raw materials and machinery, and all articles used for manufacture in industries, or do you mean machinery only?—*A.* I had machinery in mind when I made this remark.

*Q.* How would such a proposal be carried into effect?—*A.* I don't understand.

*Q.* Is it your idea that all machinery imported for industries generally should be duty free, or only machinery for use in certain industries?—*A.* For use in certain industries which in the beginning require some sort of help. If Government made up their mind to give some sort of help, this may be one way in which it might be done.

*Q.* Would you make the rule of universal application?—*A* No, only in the case of certain industries which are just coming into existence; not for the textile industry, for instance.

*Q.* But you would make it applicable to all new industries?—*A.* With certain discriminations.

*Q.* Have you any idea what the financial effect would be? It would mean a considerable loss in customs dues to Government?—*A.* Yes, but at the same time it may bring them larger duties later on, when the industries are established on a surer footing.

*Q.* With reference to your answers to questions 31 and 32, on the subject of exhibitions, is it your opinion that Government should run these exhibitions entirely at their own expense, or that they should give financial aid; or how do you propose that they should be run?—*A.* I had in mind that Government should run the exhibitions; but I suppose if they want co-operation from those who exhibit, it would not be a wrong principle.

*Q.* You think Government might give assistance to local bodies in organising such exhibitions?—*A.* Yes.

*Q*. Would these exhibitions be open to the public, or be confined to the trade?—*A*. They are mostly meant for the trade, but the public might profit by visiting these exhibitions.

*Q*. You would have it open to the public entirely?—*A*. Yes.

*Q*. In answer to question 45, you enumerate a number of ways for improving the lot of the mill hands, and among these you refer to primary education among factory children. Have you got any personal experience of schools opened by mills themselves for factory children?—*A*. Yes, I know of various mills that have their own schools.

*Q*. Do you think they afford the solution of educating mill children?—*A*. No, I don't think so. I don't think it has been tackled in the way it should. Lately there was a meeting between Millowners and the Schools Committee of the Municipality, and we have drawn up certain rules or conditions under which primary education might be made a little more general among factory children, with the co-operation of owners. That would be possible without making it compulsory at the same time. The Millowners could combine to give the majority of children some education. If some Millowners exerted themselves and tried to help in the cause, it would be quite possible.

*Q*. Would it be possible for the Millowners to refuse to give employment to children who had no education?—*A*. I don't think they would go so far as that.

*Q*. Another method you suggest for the improvement of the mill hand is the opening of grain shops. How many cotton mills are there in Bombay at present?—*A*. About 80 or 85.

*Q*. Do you know the number of grain shops that there are?—*A*. Very few.

*Q*. Thirteen is the actual number of grain shops. Can you tell me why more have not been opened?—*A*. The general impression among Millowners is that they are not successful, because the mill operative prefers to buy his grain from the sowcars to whom he is indebted, and who give him credit, than from the Millowners who want prompt payment. The Millowners cut the cost of the supply out of their pay. In mills under our control, the grain shops have done very well for a number of years; we have been doling the grain out to them every month.

*Q*. You cannot put pressure on mill hands to take the grain?—*A*. No, but when they see the advantage of buying from the mills rather than through the banniahs they do so.

*Q*. With reference to your answer to question 51 about engineering, do you think it possible to have reciprocity between different provinces, without having identically the same examinations?—*A*. I have not thought over that; I thought a general certificate for all India would be better.

*Q*. How do you mean?—*A*. That the standard of examination should be the same over all the Provinces.

*Q*. If you have different examinations and different rules, how can you ensure that?—*A*. That would be difficult.

*Q*. Would you not have a Central Board of Examiners?—*A*. That would be necessary if you want to have the same standard all over India.

*Q*. Therefore, if you want to have reciprocity, you must have a central Board of Examiners and an Indian Boiler Act?—*A* Yes.

*Q*. In your answer to question 105, you refer to the possibility of a bobbin industry being developed. Are you aware that there was a bobbin factory in this Presidency, near Surat?—*A*. I heard of it, but have had no experience of it.

*Q*. Do you know if any of the other mills in Bombay knew of its existence?—*A*. I am not aware of that.

*Q*. In the case of an industry like that of bobbin manufacture, would it not be possible for Millowners to combine and start experiments without asking Government to do so? You make the suggestion that Government should make experiments with a view to determine which wood is most suitable for turning out bobbins of various kinds used in mills. Would it not be possible for Millowners to carry out those investigations without appealing to the Government for help?—*A*. It is possible, but would be more difficult than for the Government to do so, because the latter know the products of all the forests, and where wood of a suitable nature could be procured. I don't say it is impossible for Millowners to do it.

*Q*. Supposing Government gave you the information about the different kinds of wood, do you not think that, with that information, it would be possible for you to experiment yourselves without troubling the Government any further?—*A*. Yes, I think so.

*Sir D. J. Tata.*—*Q*. In answer to question 44 you say, "I am strongly of opinion that the want of primary education among mill operatives hinders industrial development to a great extent, and that it is one of the main reasons why a country like Japan has outstripped us in the race for industrial progress.'' Can you tell us what has been done so far in Bombay in this respect, *i.e.*, have any attempts been made to provide facilities for imparting such education in Bombay?—*A.* I know of several instances of Bombay Millowners starting primary schools in conjunction with the Municipalities; but we have been given to understand that it has been without success. As I told Mr. Thomas, a conference of Millowners and the Schools Committee of the Municipality was held some time ago; and we made arrangements for opening a few schools in some of the chief centres in the mill districts in Bombay. It has been arranged that the mills should give certain help towards the maintenance of the schools, in a financial way, and that the upkeep of the schools will be in the hands of the Municipality. We have not given this a sufficiently long trial, but this has been arranged.

*Q.* You propose that your half-time boys should leave the mills and go to these schools?—*A.* That is the idea.

*Q.* How do you know that they go there when they leave the mill?—*A.* There will be a muster roll kept at school, and the owners of the factories have undertaken to use their influence. No sort of pressure is to be exercised to see that the boys attend the school. The boys have the incentive of getting a bonus for regular attendance.

*Q.* I suppose you expect to derive some benefit from educating these boys?—*A.* Yes.

*Q.* It has been suggested that efficiency in manual operations is more highly developed in the uneducated than in the educated; do you hold with that?—*A.* I think when an operative has a certain basis of primary education, he takes a little more interest in his work and knows the why's and the wherefore's of things, and is more intelligent and better able to attend machinery than a man who does it mechanically.

*Q.* Mere technical work does not require education?—*A.* Not of a high order, but if they knew the different parts of a machine it would help.

*Q.* You expect better work, both as regards quantity and quality, from an educated workman than from an uneducated one?—*A.* I do.

*Q.* By '' educated '' do you mean one who has had an elementary education in the vernacular; or somebody who combines with it a little technical education?—*A.* It would be better, if with the rudiments he has been given even a little technical education.

*Q.* On one or two occasions we have heard that the spread of education among the artisan classes tended to bring manual labour into contempt, and that sons of artisans, educated beyond the primary stage, showed a distinct tendency to forsake their calling in favour of clerical work.—*A.* I have not sufficient experience to give a reply to this; because our operatives, so far, have not been educated; or at least very few of them.

*Q.* But, generally do you think there would be a tendency in the sons of operatives to forsake their calling and want to go as clerks, if they were a little better educated?—*A.* I should not expect it if it were only a question of primary education. They may, of course, like to better their lot in life.

*Q.* Do you think that giving them a little higher education would make them stick to their regular calling, or would they forsake it and like to be clerks?—*A.* I would not expect them to forsake their calling.

*Mr. C. E. Low.*—It depends how much higher.

*Sir D. J. Tata.*—*Q.* Are there any voluntary organisations, like the Social Service League, which have undertaken anything in the matter of educating mill hands?—*A.* I have not much experience of Bombay mills so far, and don't know much about them. We have only lately taken up the agency of mills in Bombay, and I think somebody else would be able to speak of this with more knowledge.

*Q.* Have you any experience outside Bombay?—*A.* I have experience of our mills in Nagpore and Kurla. We give a certain grant to the Municipality for the education of our half-timers, and also give prizes. We work hand in hand with the Municipality, and this has proved satisfactory.

*Q.* In answer to questions 47 and 48 you say, '' The training in industrial schools, though excellent, is bound by its nature to be somewhat defective as these schools cannot reproduce the conditions and atmosphere of an actual working factory.'' Can you tell us what is exactly the type of student you receive from technical and industrial schools; and what assistance do these institutions give towards the development of your industry?—*A.* We hold that technical students, whom we take up in time, grow to be good men; but a man fresh from a technical school is not of much use to us. Even now we always give a man an agreement of five years, before we think a man is competent to take charge of a department.

*Q.* Have you not noticed any improvement of late? What is your experience with regard to this?—*A.* We have got a few technical school students who are doing satisfactory work; but we don't attach very great importance to their technical education. We don't entrust them with work, as we don't think they are up to it.

*Q*. Why? Is it because they cannot handle labour?—*A*. That is a very essential point. They know machinery in all its details, and they know the theory of things; but as you know, in each department the organisation of labour is very important, and especially so in certain departments. Again, they have not worked under actual conditions, where the incentive of higher production and all these details come into play as in an actual factory. They know all about machinery and the theory of it, and how the several parts of the machinery fit in, but that is not everything.

*Q*. In answer to question 49, you say, "Day schools for short timers, *i.e.*, for children, have been tried; but they are failures. When the body is fatigued, the mind does not work." You also say: "Night schools succeed best in countries where there is a basis of widespread primary education, and where the hours of labour are shorter." Can you tell us, in this connection, if you have investigated the effect on production of shorter hours?—*A*. Now all the mills are working 12 hours a day. Before the last Factory Act came into force, the mills worked 13, 12 and 11 hours, according to the season, I mean those mills which only worked with natural light. We find that where the efficiency is as high as it should be, the drop-off in shorter hours is not so marked as where the efficiency leaves much to be desired. We went into this rather closely in our Nagpore mills, and find that, compared with the 13, 12 and 11 hours' production—even though we claim that we worked fairly efficiently in our mills—there was a difference in percentage of production, according to the shortness of hours. I have got the actual figures with me. In the Spinning Department we did 3 to 4 per cent. better with shorter hours. In one case it was 4·03 per cent. and in another 4·01 per cent. (The witness, in reply to Sir D. J. Tata, promised to hand this statement* to the Secretary.)

*Q*. What is your opinion as to the universal working of, say, 10 hours?—*A*. This question has to be approached rather carefully. I should think a mere statement that shorter hours give better production, and that it is all round beneficial to the workmen is not satisfactory. Instead of that, I would say that if you go on shorter hours you are bound to suffer in point of production. On the other hand I hold that working shorter hours keeps men in better discipline. The mind is more alert, and the conditions of working are more attractive. All that we suffer from shortness of labour might be remedied by giving the workmen shorter hours of work and better amenities of life. Personally I think that perhaps in competition with Japan or other countries we would suffer in point of production to a certain extent, but I think that experience will show that in time this will be more than made up by making the work more attractive to labourers and will make them pay better attention to their work.

*Q*. A witness before you told us that his experience was that mills, when they worked 12 hours, found that nearly all operatives put in 8 hours work out of the 12, and frittered the rest of the time away.—*A*. I think that is a little too sweeping. I don't think they waste away so much time. They certainly waste a good lot of time, but certainly not as much as one-third.

*Q*. If they were given shorter hours of work, they would be more alert and come back the next day less tired, and do their ten hours better?—*A*. I think they would, and they would be better amenable to discipline.

*Q*. Can you foresee the time when in ten hours you might be able to get the same production that you are getting nowadays in twelve hours?—*A*. I would not care to make a statement in regard to that.

*Q*. In course of time would you?—*A*. We have gone into the efficiency of machines, how much the machines can produce theoretically, and find that even with our 12 hours work we can get 90 per cent. in the Spinning Room, and 65 per cent. in the Weaving Room. There is not much room for improvement; 10 per cent. is very little, so that if you curtail the working hours from, say, 12 to 10, perhaps we may not make up all the loss in production. I attach more importance to the satisfied condition of the workmen. Perhaps the attendance would be better all round, and they would love their work more. At present they merely come to earn their wages; there is not much co-operation; they merely go on and fill up a day.

*Q*. While on the subject of wages, I would like to ask you to give us some idea how far wages have risen in the mill industry in recent years?—*A*. In connection with one of our mills I got a statement out from 1907 to 1917, and find that wages have risen anywhere from 44 per cent. to 117 per cent. during the last decade. In one particular department, *viz.*, frame doffers and spinning doffers, the rise has been 117 per cent. and 113 per cent., *i.e.*, more than double.

---

* *Vide* Appendix printed after the witness' oral evidence.

*Q.* Why were wages raised to this extent? What were the causes that led to this enormous rise?—*A.* There are various reasons why this happens. Living has become dearer all round: the kindred industries pay better, and we found that the wages paid were inadequate.

*Q.* Did you find that labour responded to the stimulus of these higher wages? Did they affect your production?—*A.* I should think it was the other way about. The work has suffered since giving a rise in wages.

*Q.* Why is that? It seems to be unbelievable?—*A.* It is hardly two months that the Bombay mills gave an all-round increase of 10 per cent. in wages, and our actual experience in one of our own mills is that the average attendance has fallen off considerably. All the Managers seem to hold this view, that whenever there is a rise in wages, the men do not care to earn the higher wages. They put in less work, and there are more absences than when wages were lower.

*Q.* Does the quality of the work suffer too?—*A.* It is bound to suffer, if labour is not steady. We are obliged to keep *budlies*.

*Q.* In answer to question 15, No. 1, you refer to sanitary chawls at moderate rents. Can you give us an idea of the conditions under which the mill hands live in Bombay?—*A.* I can give you the conditions prevailing at Kurla and Nagpore, but not in Bombay.

*Q.* Generally, are the conditions in Bombay good or bad, or indifferent?—*A.* I have not made any investigations myself, but am told that conditions are very bad, though I have not seen them myself.

*Q.* Are they worse in Bombay than in other places? Or is it owing to the natural conditions existing in Bombay,—as for instance the fact that there is no land available for building purposes?—*A.* That is one reason too.

*Q.* But some Millowners have taken to building chawls for their operatives. Do you think the latter like to come and live in those chawls?—*A.* If we go by our mofussil experience, I think they would welcome the chawls, provided they are rented to them at a lower rent. We have never had many rooms vacant in our chawls at Kurla.

*Q.* At Nagpore I understand your experience was not the same?—*A.* Nagpore conditions are quite different. There it was found that 60 per cent. of the operatives were house-owners themselves, and preferred to stay in their own houses.

*Q.* I suppose all these people want to live with their own caste-fellows, or with their own people?—*A.* That has some influence.

*Q.* That would not prevent the workmen from coming in, if their relatives were working in other mills?—*A.* If the owners gave them the benefit of cheap rent, that could be got over.

*Q.* They would naturally like to live together, and would have to go into one or other of the chawls?—*A.* Yes.

*Q.* In answer to question 45 you say, "The absence of concerted action on the part of the Millowners gives facility to the operatives to change their masters, and to roam from factory to factory." Has your Association done anything to prevent operatives going from one mill to another?—*A.* No.

*Q.* Why not?—*A.* That is rather a difficult question to answer. Some attempts have been made, but we have never successfully done something together.

*Q.* What is your Association for, if you cannot take concerted action?—*A.* Yes. It is unfortunate!

*Q.* With reference to your suggestion regarding abolishing the drinking habit among operatives, what is the cause of these drinking habits? Is it the long hours of work?—*A.* Yes, and also want of any change in their surroundings. They want some excitement after the day's work, and have no recreation to pass away the time, and so drinking comes natural to them.

*Q.* In answer to question 91, regarding the adulteration of cotton, you say that this has been for a number of years engaging the attention of Millowners without their being able to suggest an effective remedy. Why cannot some effective remedy be thought out for this? Can you suggest any?—*A.* The only remedy that was tried some years back was the Cotton Fraud Act, by which it was penal to adulterate cotton; but they found the remedy worse than the disease, because some of the officials made a good thing out of it. By "officials" I mean the lower officials who came in contact with the cultivators. Government found in time that the remedy was not effective and repealed the Act. Since then Government has been asking us, and we have been crying out that this adulteration is going on, but nobody has done anything so far to prevent it, *i.e.*, no practical remedy has been suggested.

*Q.* I believe that it has been suggested that it should be penal for anybody to water the cotton?—*A.* That is one of the suggestions.

*Q*. Cannot anything be done in that direction?—*A*. I should say the remedy is more or less in the hands of the purchasers themselves. If the purchaser did not go by the name of the cotton, but actually took the trouble to see the quality before buying it, and boycotted all adulterated cotton, which it would be quite easy for any mill expert to tell, this adulteration would, to a great extent, stop itself. American cotton is not adulterated to the extent that Indian cotton is, simply because the purchasers are far more careful.

*Q*. How could you get hold of unadulterated cotton?—*A*. By purchasing on the spot where the cotton is grown, and purchasing it yourself. Though *kapas* is adulterated and seeds are adulterated, you can still more or less see how far the adulteration extends.

*Q*. Why do people pay the same price for it?—*A*. I could not tell you. We ourselves try to purchase on the spot, as far as possible; that is why we have gins and presses in various centres.

*Q*. Do you think Government can take any action in helping you to buy direct from producers?—*A*. We should do it ourselves; why should there be any Government help? We can reach the cultivators quite easily.

*Q*. In answer to question 94. you say, "The evil of copying trade marks and trade numbers goes on with impunity." The witness just before you said that it was not so; and that the evil had been practically remedied. What have you to say to that?—*A*. In the case of trade marks it is more or less under control, but not in the case of numbers. The pirating of numbers seems to go on with impunity. Lately a decision was given in the High Court that there can be property in numbers. We have not had time to learn its advantages, but think it has had a wholesome effect generally.

*Q*. In reply to questions 97 and 98 you say, "The present lack of waggons has disorganised trade to a great extent"; particularly, I suppose, with regard to the supply of coal? Besides coal, does it affect the movement of cotton and yarn?—*A*. It interferes with the movement of cotton and cloth especially; but there were special reasons for this.

*Q*. Have you anything to say about existing railway freights?—*A*. No, nothing, beyond what has already been said on this subject by Sir Bezonji Dadabhoy.

*Q*. Turning to railway sidings, is it possible to obtain them in Bombay easily?—*A*. We have experience of an instance when we started our new Tata Mill. We bought the land just adjoining the boundary line of the railway, which was the main reason why we bought this particular spot of land. We drew up a plan with a view to having a siding, and corresponded with the railway authorities. They replied that they would allow us a siding on certain conditions, but when we saw those conditions we found it would pay us better not to have that siding.

*Q*. Then it did not pay you to have that siding?—*A*. No, they asked us exorbitant rates to have the siding, and made it quite impossible for us to do so.

*Q*. In answer to question 110, you say, "Government requirements of cloth for army clothing, for hospitals, for tents, etc., should, as far as possible, be taken from Indian mills." How far do you think this has been done upto now? Do you think there is any discrimination in the matter between mills and mills?—*A*. Our personal experience of this is satisfactory on the whole. We have done well with Government. I refer to the time since the war broke out. Before that we were leaving Government alone, as we thought there were more difficulties in trying to get Government contracts than was the case with dealers.

*Q*. Do you know of any specific instances where there was any preference shown?—*A*. It is the prevailing idea in Bombay that that is the case; but fortunately our experience is otherwise.

*President*.—*Q*. Do you mean that contracts were given to dealers rather than to manufacturers; or that there was discrimination between manufacturers themselves?—*A*. It is both ways really; sometimes dealers have been able to get orders which mills have not been able to get; and sometimes the cry has been raised that certain mills have been given preference. That is the belief. Our actual experience is that things are satisfactory. We have been dealing direct with the Munitions Board, and before that with the Army Clothing Department. We have not always been getting the order, but there were reasons for it.

*Sir D. J. Tata*. *Q*. You don't know of any instance where the dealer was preferred to the actual manufacturer?—*A*. I am not quite sure of my facts. I cannot give you a concrete instance.

*President*.—I have issued orders recently that no orders are to be given to middlemen, as long as manufacturers can supply the article.

*Sir D. J. Tata*.—*Q*. In answer to question 110, you say something about cheap freights, in connection with trade with China?—*A*. That has been a grievance for a number of years, during which we have been suffering in our competition with Japan. The rates have always been very much in favour of Japan, but perhaps the Millowners themselves are to blame for that, as they had the chance of running their own line.

*Q.* How can Government help in any way?—*A.* We would be pleased if we did get help.

*Q.* But is it a thing for Government to interfere in? You complain that the subsidised lines don't treat you fairly?—*A.* Quite so, and if Government could bring it about that we received equal treatment, it would be a great help to the trade generally, especially as our China trade is slowly dying out. It would help to keep it going for some years more.

*Q.* Is it not an advantage that you are not dependent on the China trade, and are obliged to find a market in India?—*A.* That has been our main object, but as long as we can maintain a lucrative trade, all Millowners would like to keep it.

*Q.* You did not take any trouble in trying to make a market for yourselves?—*A.* All mills are trying now to develop local markets.

*Q.* On the subject of calico printing you refer to the difficulty of obtaining cheap and suitable water. Have you tried to get the help of the Municipality?—*A.* No.

*Q.* In answer to question 111 you say "A greater impetus should be given to the starting of more cotton-seed-oil mills." Are you in a position to say what sort of assistance would be required from Government for this industry?—*A.* I ask for Government assistance, but I should think the industry by means of private enterprise could be brought to a good position.

*Q.* Who should give the impetus, in the sentence "A greater impetus should be given"? Government or the people themselves?—*A.* If Government did give some impetus, as they did in the case of the Premier Mill at Cawnpore, in the way of demonstration factories, it would be helpful in certain districts.

*Q.* Have Millowners in general given any attention to the subject of workmen's compensation, in the case of accidents?—*A.* I am afraid not.

*Q.* Do you think the time has come when Millowners must join together to provide scientific research in the interests of India?—*A.* Yes, it would be very helpful if they did, especially with regard to our dyeing and bleaching trade.

*Q.* You mean chemical research to help you in the dyeing and bleaching line?—*A.* Yes.

*Q.* I understand that mills have made very big profits for the last two years. If they could lay aside a small percentage of their profits and start a Research Institute, don't you think it would be to their advantage?—*A.* I think so.

*Q.* Is there any likelihood of such a course being adopted?—*A.* Do you mean by Millowners as a body? My experience does not warrant me to say so.

*Q.* We notice that the cotton industry flourishes on the Bombay side, and that outside of Bombay Presidency, very little is done in this direction. Why is this? Why are there no cotton mills of any importance outside Bombay? Is there anything peculiar to Bombay that contributes to the development of this industry?—*A.* I think there are one or two reasons; first of all Bombay is near a district where cotton is grown abundantly and of all varieties, as against Punjab and Bengal where short staple cotton is only grown; secondly it is the enterprise of the local people more than anything else.

*Q.* Do you think then there is something in race or heredity that accounts for people on this side of India being more enterprising?—*A.* The people on this side of India are more enterprising, I mean the Indians themselves, than people in other provinces.

*Hon'ble Sir Fazulbhoy Currimbhoy*—*Q.* In answer to question 5 you say, "This help may be given in a variety of ways, *e.g.*, (1) Guaranteed or preferential Government purchase." What do you mean by Government preferential purchase?—*A.* I mean as against getting out the same articles from outside India.

*Q.* You mean they should give a little more preference if the goods are of the same quality?—*A.* Yes, if they are good enough for the purpose.

*Q.* In answer to questions Nos. 31 and 32 you say, "Government should hold or encourage such exhibitions." Don't you think that museums also are needed?—*A.* Yes, all efforts in this direction would help.

*Q.* A permanent institution where you would have the products of the provinces and also the things we import?—*A.* Yes.

*Q.* About primary education you say that the want of it hinders industrial development to a great extent. You would want it compulsory; without compulsion you won't get the boys to go to these schools?—*A.* I would not go so far as that, unless it was made compulsory for the whole city. I would not like them to differentiate between mill children and other children.

*Q.* You say, "In order to improve the efficiency and skill of the workmen employed in the mills, it is necessary to take measures to attract a better class of men to the work." What do you mean by "a better class of men"?—*A.* I mean those who have worked in other mills, and who are likely to stick to their work: workmen with better habits, regular in attendance, and who pay better attention to their work.

*Q.* How are we going to get them?—*A.* You always try to attract workmen by paying hem higher. Instead of doing that, give them better amenities of life; make them work shorter hours. In this way you would attract them.

*Q.* If the men work regularly, instead of going to their country, you would have nore skilled labour?—*A.* Yes.

*Q.* Have you found that the present mill hands have improved a lot in regard to production compared with the men employed say 13 years ago?—*A.* In the Weaving Department there is a slight change for the better.

*Q.* In regard to the matter of drink, don't you think that the drink habit would go if they got better amenities of life, such as Temperance Societies, lectures by Temperance Societies, Libraries and Clubs, and co-operation among the people?—*A.* Yes, make their lives more pleasant; give them recreation grounds in the city. I do not think Temperance Societies alone would be of much use.

*Q.* Co-operative Societies? Don't you think that these would improve their position too?—*A.* Yes.

*Q.* About their dispensaries. What at present is the system under which medical aid is given to operatives?—*A.* I can tell you about our own mills where we maintain a dispensary and a duly certificated man at the Company's expense, and give them all the medicines they need free of charge.

*Q.* And what about other mills?—*A.* In other mills they charge a certain percentage.

*Q.* But they all have medical aid?—*A.* Almost every mill has a dispensary now.

*Q.* What has been your experience of grain shops?—*A.* Ours has been quite satisfactory; our experience is in Nagpur and Kurla. In Bombay we have just started grain shops, and I have no experience of Bombay.

*Sir D. J. Tata.*—*Q.* Where is your grain shop situated?—*A.* Just outside the gate of the mill.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* What do your hands get on an average, per month, in the Weaving and Spinning Departments?—*A.* The weaver gets on an average about Rs. 25 and the spinner about Rs. 18, with his bonus and everything.

*President.*—*Q.* What does that average include—children, women, men?—*A.* In the Weaving Department they are all adults: there are no children.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* The best man gets much more?—*A.* Yes, in one mill I have heard that the weaver gets as much as Rs. 60 per month.

*Q.* Have you proper control over your hands now?—*A.* No, I think the discipline is slacker than it used to be.

*Q.* And still you think that if you had 10 hours' work you would do better?—*A.* We would have better control than we have now. There would be more energy and they would be more amenable to discipline.

*Q.* If you make them work 10 hours, how would they spend the rest of their time?—*A.* They would have more time to go about and do their household work.

*Q.* Go about where? In the streets, and drink?—*A.* Not exactly.

*Sir D. J. Tata.*—*Q.* Did you not try the 8 hours' experiment for a short time?—*A.* For a short while in the Swadeshi Mills.

*Q.* It was not very encouraging?—*A.* The average was better. I have not got the figures before me now.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* How many hours do the men (who work 12 hours) work regularly?—*A.* I have no idea. I have not taken any special steps to find out.

*Q.* Do you think with the 10 hours working, they will be able to compete with Japanese goods which are coming into the country, in point of cost?—*A.* Of course the charges would increase.

*Q.* And Japan could drop her stuff down cheaper?—*A.* They are doing it now.

*Q.* With 10 hours it would be worse?—*A.* Yes.

*Q.* And in regard to countries in Europe which work 8 hours a day, do you think that your 10 hours would be as good as their 8 hours; would you be able in your 10 hours to produce as well as they in their 8 hours?—*A.* I cannot give you a reply, as the people in Europe work under easier conditions, while the conditions here are more arduous.

*Q.* Suppose they produce the same stuff? Will you be able to compete with them if you worked 10 hours?—*A.* If you come down to 10 hours, you are likely to suffer for some time; and how much you can make up with better working, only experience can tell. They will work better than they do now, but the production will not be the same, and the cost may be more.

*Q.* You say, " Indian mills have more than once been on the verge of a total stoppage for lack of coal." Had you any other trouble than the lack of coal?—*A.* There has been a waggon shortage for our other commodities. We have not been able to send away our finished goods as well.

*Q.* About chawls for the mill hands, suppose you had your own chawl and the men went on strike. What would you do with the accommodation? You would, of course, ask them to clear out?—*A.* That would be a question of landlord and tenant.

*Q.* And then they would be in a much more helpless position, and could not go on strike?—*A.* You cannot clear them out. You have to give them the usual notice, unless before employing them you made it a condition.

*Q.* Say, for instance, you give them one month's notice and clear them out. Won't that make them more dependent on you, as was the case at Ahmedabad?—*A.* I do not know about Ahmedabad.

*Q.* You make a reference to Consuls in various parts of the world. What means would you suggest for advertising Indian goods? By getting information from different Consuls, or sending our own men?—*A.* Both ways; getting men to go out with the goods and so making them better known in different places.

*Q.* Do you agree with the idea of having an attaché at different Consulates?—*A.* Yes, it is a good idea.

*Q.* What about the Trade Commissioner; will he be of advantage to us?—*A.* Our Association has approved of the idea of having a Trade Commissioner.

*Q.* About scientific research, you have replied to Sir Dorabji Tata that it would be much better for Millowners to start a Scientific Research Institute. Do you know what the cost of such an Institute would be?—*A.* The cost would be very great, I realise, if you have a fully equipped staff and laboratory, and do the work properly.

*Q.* Have you any idea what percentage of profit the mills have made on the whole?—*A.* The mills have always paid in bad as well as good years. On the whole the mill industry has been a very lucrative business.

*Q.* What percentage on the capital have they earned?—*A.* I do not know the figures, but I think they have done quite well. I am especially referring to the weaving mills.

*Q.* In regard to the spinning mills, too, the same question crops up; why are we trying for other markets and not for India. Even if you supplied India's needs, you would have to trade in other countries. Don't you think we ought to encourage that also?—*A.* Yes.

*Q.* About the Industries Department, what are your views; should we have provincial Departments and also an Imperial Department; and in regard to the experts, should they be Provincial experts or Imperial experts?—*A.* I have not thought very seriously over this.

*Q.* You think that Commissions similar to the one sent out by the Madras Government to Russia should be sent to different countries from time to time, after the war?—*A.* Yes, I think so.

*Q.* In regard to the list of articles you have given, do you think we can manufacture all these things here?—*A.* I gave the list with the idea that some of the things can be manufactured, and are, as a matter of fact, being manufactured here now.

*Q.* You are managing the Sind Cotton Syndicate?—*A.* Tata and Sons are agents.

*Q.* Can you tell us what your difficulties are; why you have not been so successful from the beginning?—*A.* First of all we started on certain Government promises regarding getting a certain quantity of seed every year. Unfortunately for various reasons those promises have not been carried out, and the crop every year is so small that it is not worth our while keeping it on.

*Mr. C. E. Low.*—*Q.* Are you growing the crop yourselves or purchasing?—*A.* Purchasing.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* You think that Government can grow a lot of staple cotton out of the American seeds, and that it can be grown successfully?—*A.* Yes.

*Q.* In regard to calico printing, do you think if money is spent, say 25 to 30 lakhs, that the industry would be successful? What has been your experience?—*A.* We have never set up calico printing works, but merely carried out certain investigations.

*Q.* Do you know of others who have?—*A.* The attempt was very half-hearted, and t was not given a fair chance.

*Q.* Don't you think that Indian cloth is ousting printed things in India; that there s less import of printed goods, and that Indian cloths are replacing them?—*A.* To a certain extent only. India does not produce the style of cloth which you get as printed cloth.

*Q.* Will you give us some idea about Industrial Banks; what kind of banks ought the Government to start to help cottage and other industries?—*A.* I do not think I can answer hat question.

*Mr. C. E. Low.*—*Q.* Could you say what proportion of your hands purchase from the grain shops?—*A.* I am sorry I have not actually worked that out in Bombay. We sell every month about Rs. 2,000 worth of grain; in Nagpur about Rs. 10,000 every month. I have not worked out the proportion of mill hands who actually buy.

*Q.* That does not postulate a very large proportion in the case of Bombay?—*A.* No.

*Sir D. J. Tata.*—*Q.* What proportion does this Rs. 10,000 bear to the wages bill in Nagpur?—*A.* For wages and salaries our bill per annum is Rs. 9,91,000, out of which we should exclude Rs. 1,20,000 for salaries. I should say it would easily be one-fifth or one-sixth of the total.

*Mr. C. E. Low.*—*Q.* Have you any experience of any of these co-operative organisations or other schemes for the improvement of the labouring classes?—*A.* Some people have started a Co-operative Society, but I have not much experience of them.

*Q.* You say you are the owner of chawls in Ahmedabad. To what extent do you attempt to enforce any kind of sanitary regulations; and how far are you successful?—*A.* That is a question to which we have paid a good deal of attention. We have the septic system, by which all the dirt and everything is removed. The area round our mill is so very large that there is no difficulty in maintaining sanitary surroundings around us.

*Q.* I mean in the chawls?—*A.* The Company maintain two or three sweepers to go round and clean up the main alleys and see that not much dirt is thrown out; and one of the officers goes round to see that things are kept up to a certain level of cleanliness.

*Q.* Do the people resent this?—*A.* No.

*Q.* Have you any special regulations about the bathing places?—*A.* No.

*Q.* Have you bathing platforms, or water laid on, or tanks, or what?—*A.* They sit down under the tap.

*Q.* Then you have water laid on?—*A.* Yes.

*Q.* What proportion of labour in the Bombay mills is recruited through jobbers?—*A.* Practically the whole of it.

*Q.* What class of people are the jobbers?—*A.* Mostly Hindus.

*Q.* The same class as the mill hands themselves?—*A.* They are mostly Konkanis and Deccanis.

*Q.* Are they Brahmins?—*A.* They are Mahrattas and Gujeratis.

*Q.* But the jobbers themselves are of the same caste and social position as the labourers?—*A.* If they happen to be of the same class they have a better hold over the men than otherwise.

*Q.* Have you had any experience in receiving adulterated mill chemicals?—*A.* Yes, it happens at times.

*Q.* What do you do when you get that sort of thing?—*A.* When we are getting the stuff we always stipulate that it has to be of a certain strength, and if not up to that we return it.

*Q.* What test do you apply, and is it recognised by the seller? Supposing you bought, say, magnesium chloride, and there was a lot of dirt or common salt in it, you would say we have got so and so's analysis and the stuff is so much below the guaranteed standard, and therefore we won't accept it. The seller might object to the analysis. In such a case what do you do?—*A.* We have no perfect system of analysing the samples; our principle is whether it is good enough for our work.

*Q.* Is there any accepted analysing authority?—*A.* Sometimes we specify a certain percentage, say 98 per cent. strength for zinc chloride and if it does not come up to that, we reject the stuff. We have the right to do this, and also get a certain rebate, if it is of less strength than ordered.

*Q.* Have you any system of arbitration among cotton Millowners?—*A.* We are always subject to the rules of the Cotton Trading Association and the Cotton Exchange.

*Q.* I mean when you are buying?—*A.* It is all subject to those rules.

*Mr. N. B. Saklatvala.*

*Q.* Suppose you purchased 100 bales of cotton and you found that it was adulterated, what action would you take? Supposing the seller was recalcitrant, would there be arbitration?—*A.* There are two arbitrators who judge on the sample, and they make a certain allowance, and the rule is that if the allowance given is more than 5½ per cent. we have the option to reject the contract.

*Q.* Then why should you receive any adulterated stuff?—*A.* Because the original sample on which the contract is based also contains adulterated cotton. In the Bombay market it is difficult to get pure cotton.

*Q.* Do you think there is any possible remedy for that?—*A.* The remedy is in the hands of the purchaser himself. He has got to be careful. He must discourage this practice, and he should be willing to pay higher prices for pure stuff.

*Q.* Are there any signs of such action being taken?—*A.* I am afraid, no.

*Hon'ble Sir R. N. Mookerjee.*—*Q.* In normal times, that is not considering the war time conditions, have you had any difficulties in the matter of transport?—*A.* There has really been nothing to complain of.

*Q.* So that the complaint only relates to the war period?—*A.* Yes.

*Q.* Have you also got a rebate system here?—*A.* We get the rebate at the end of the year from Shipping Companies on goods to Karachi.

*Q.* In Bengal we have a rebate system in Railways.—*A.* At least I do not know of any.

*Mr Chatterton.*—*Q.* Is much cotton imported into Bombay by sea?—*A.* Very little, not to a great extent.

*Q.* Is there any competition between railway routes and the alternative routes by sea through the coast ports?—*A.* There is some competition between the Marmagoa route and the route by rail.

*Q.* Has that had any effect in the way of reducing railway rates?—*A.* I do not know exactly.

*Q.* You were speaking of the efficiency of the operations in the mills, and I think you said it is 90 per cent. in the spinning rooms and about 65 per cent. in the weaving rooms. Can you tell us the reason for the difference?—*A.* For one thing, in the spinning room the machines more or less are going all the time; in the weaving room the machines have to be stopped when we have to change the weft and beams, and the operatives stand idle longer than in the spinning room: in the spinning room such operations do not take more than about a couple of minutes.

*Q.* Is there anything in the idea that the Indian looms are running too fast for the operatives?—*A.* It all depends on the stuff at the different mills.

*Q.* You said that the weaver gets on the average about Rs. 25 a month, and some of them earn as much as Rs. 60 a month?—*A.* That is what I have heard, but we have not actually paid Rs. 60; we have paid up to Rs. 15.

*Q.* Can you tell us if any large percentage of imported yarn is used in the weaving sheds in Bombay?—*A.* Not so much as in Ahmedabad. There they use imported English yarn.

*Q.* Yarn of high counts, I suppose?—*A.* Yes. We prefer to make them ourselves.

*Q.* What is the highest count that is now spun in Bombay?—*A.* We are spinning up to 80s ourselves out of Egyptian cotton.

*Q.* Do you sell much of these higher counts which you spin in your mills to the local handloom weavers, or is it all used up in your mills?—*A.* We weave part of our spinning production, say, about 60 per cent. and the rest goes to the handloom weavers.

*Q.* As regards calico printing, I think you say that the coarser cloth at present manufactured in the Indian mills is not suitable for calico printing?—*A.* Yes, the cloth must be fine. We do not produce the finer quality of cloth required.

*Q.* Is that a sufficient reason for the fact that calico printing has not made any headway here?—*A.* That is one of the reasons I should say.

*Q.* Not an important reason?—*A.* We examined a series of samples of calico printed cloth, and we found that the bulk of them coming as printed goods are much finer than what we use here.

*Q.* By finer cloth do you mean of closer weave or finer count?—*A.* I should say both.

*Q.* In reply to question 15 you say in your note that technical and scientific researches by Government Departments might be of service to the textile industry provided the results of such researches are made public from time to time. Is not there a danger in the publication of the results of these scientific researches? Would it not be better to arrange that such researches should be privately and confidentially communicated to people likely to be interested in them? Is it desirable that there should be widespread publication of everything done?—*A*. I have not looked at it from the point of view you put. But if there is that danger, it might be communicated only to people who may be interested.

*Q*. Would that apply also to the Consular reports?—*A*. It applies to all.

*Q*. Would it not then be better to arrange in the case of Consular reports to make them available only to those likely to be interested in them and that the information should be communicated confidentially through the Director of Industries? Would you favour that instead of the dissemination of information broadcast?—*A*. Yes, if there are obvious disadvantages in disseminating information broadcast, that would be the better way.

*Q*. In reply to question 52 you say that the Bombay Textile and Engineering Association supplies a long-felt want. What is the object of this particular Association?—*A*. It is an association of some of the higher officials of mills, like managers, engineers, and carding and spinning staffs.

*Q*. Not a trade association?—*A*. No.

*Q*. Then in reply to question 101 you say that "the Bombay Millowners have to thank themselves for this state of affairs, as they were shortsighted enough not to grasp their opportunity when one was offered 20 years ago." What were those opportunities in regard to shipping?—*A*. The late Mr. J. N. Tata some years back, when he saw the unequal competition between Japan and India, started his own line of steamers between India and China, in conjunction with one of the well-known Japanese lines, and fixed upon a rate for Hong Kong and Shanghai which was much lower than the freight charged by the conference lines and it was agreed upon among certain of the shippers that they would give all their co-operation to make this line flourishing by giving it all their shipping. It was started and it went on for some time, but the conference lines brought down their rate to a nominal sum, and the shippers did not stand by us and our firm suffered in consequence till at last after suffering certain losses we had to give up the line.

*Sir D. J. Tata*.—*Q*. May I supplement what Mr. Saklatvala has just said? This was not the first opportunity; there were three opportunities. We first tried to work with the Italian Rubatino Company and then with the Austrian Lloyd; then we ran our own steamers along with the Nippon Yusen Kaisha, with the result that the P. & O. reduced their rate to one rupee, when our steamers were loading. Those who had promised us freight, rather than carry out their promise, only provided a very small amount of freight at our regulation rates or none at all, and our boats went empty. Of course, the moment we dropped out, the P. & O. in order to make up their losses raised their rate from 15 to 20 or 24 rupees, I forget which. There were thus three opportunities, not one.

*Sir F. H. Stewart*.—*Q*. In reply to the question about the various forms of Government aid, you said that you were not in favour of direct financial help in the way of grants in aid, or provision of shares, and in such ways?—*A*. My idea in saying that was, that it was not necessary for industries which are already in a flourishing condition; but I say that in the case of an industry like ship-building, such help is indispensable.

*Q*. What particular help does this require?—*A*. That is a very large question, I am afraid. It cannot be carried on on a small scale to start with, and as you go on, you will be able to find out where help is needed.

*Q*. You lay no stress on this Government help?—*A*. No.

*Q*. You want generally that something more should be done than what the Government does now?—*A*. Yes.

*Q*. With reference to mill labour you say that the mill hands change from one mill to another; for what reason?—*A*. For no reason; they go according to their whims and fancies, and then they go away to their homes. That is their regular practice.

*Q*. Do they come back regularly?—*A*. They come back, but then you are not sure whether they come back after 15 days or 15 months.

*Q*. The jobbers you refer to, are they actually working in the mills in charge of hands?—*A*. They are in charge of departments; they are responsible for maintaining a certain number of men for certain classes of work.

*Q*. Have they a fairly good hold on them?—*A*. As a rule they are the only people who have hold over them.

*Q*. But you occasionally or often have trouble with them?—*A*. Yes.

*Q*. You say that every time that wages have been put up, work has suffered. How do you account for that?—*A*. The mill hands only care to earn a living wage to keep their body and soul together, and they have no incentive to get higher wages with a view to enjoy other comforts of life.

*Q*. With reference to calico printing, do I understand you to say that the demand for prints is growing less?—*A*. That is what I heard. I am not aware of this.

# APPENDIX.

*Statement showing summary of average production of the same counts per spindle per hour for each month of the years 1897 to 1907 inclusive at the Central India Mills at Nagpur.*

### No. 10s Twist Reeling.

| 11 hours a day. | | | 12 hours a day. | | | 13 hours a day. | | |
|---|---|---|---|---|---|---|---|---|
| Months. | Average hours worked. | Production per hour, oz. | Months. | Average hours worked. | Production per hour, oz. | Months. | Average hours worked. | Production per hour, oz. |
| January ... | 10·76 | 1·612 | March | 11·57 | 1·572 | May . | 12·74 | 1·536 |
| February . | 11·13 | 1·594 | April | 12·24 | 1·555 | June | 12·87 | 1·559 |
| November . | 10·97 | 1·616 | August | 12·28 | 1·579 | July . | 12·64 | 1·548 |
| December ... | 10·64 | 1·620 | September | 11·84 | 1·569 | | | |
| | | | October | 11·39 | 1·577 | | | |
| Total | 43·50 | 6·442 | Total | 59·32 | 7·852 | Total ... | 38·25 | 4·643 |
| Average | 10·87 | 1·610 | Average | 11·86 | 1·570 | Average | 12·75 | 1·548 |

2·48 per cent. over 12 hours' day. 3·94 per cent. over 13 hours' day.

### No. 20s Twist Reeling.

| 11 hours a day. | | | 12 hours a day. | | | 13 hours a day. | | |
|---|---|---|---|---|---|---|---|---|
| Months. | Average hours worked. | Production per hour, oz. | Months. | Average hours worked. | Production per hour, oz. | Months. | Average hours worked. | Production per hour, oz. |
| January | 10·76 | ·696 | March | 11·57 | ·678 | May | 12·74 | ·666 |
| February | 11·13 | ·691 | April | 12·24 | ·669 | June | 12·87 | ·691 |
| November | 10·97 | ·692 | August | 12·28 | ·662 | July | 12·64 | ·662 |
| December | 10·64 | ·700 | September | 11·84 | ·662 | | | |
| | | | October | 11·39 | [illegible] | | | |
| Total | 43·50 | 2·779 | Total | 59·32 | 3·349 | Total . | 38·25 | 2·019 |
| Average | 10·87 | ·695 | Average | 11·86 | ·670 | Average | 12·75 | ·673 |

4·03 per cent. over 12 hours' day. 3·55 per cent. over 13 hours' day.

### No. 6s Twist Reeling.

| 11 hours a day. | | | 12 hours a day. | | | 13 hours a day. | | |
|---|---|---|---|---|---|---|---|---|
| Months. | Average hours worked. | Production per hour, oz. | Months. | Average hours worked. | Production per hour, oz. | Months. | Average hours worked. | Production per hour, oz. |
| January | 10·76 | 2·827 | March | 11·57 | 2·812 | May | 12·74 | 2·742 |
| February | 11·13 | 2·858 | April | 12·24 | 2·736 | June | 12·87 | 2·771 |
| November | 10·97 | 2·829 | August | 12·28 | 2·740 | July | 12·64 | 2·777 |
| December . | 10·64 | 2·827 | September | 11·84 | 2·807 | | | |
| | | | October | 11·39 | 2·934 | | | |
| Total | 43·50 | 11·341 | Total | 59·32 | 14·029 | Total .. | 38·25 | 8·290 |
| Average . | 10·87 | 2·835 | Average | 11·86 | 2·806 | Average . | 12·75 | 2·760 |

1·10 per cent. over 12 hours' day. 2·67 per cent. over 13 hours' day.

### No. 16s Twist Reeling.

| 11 hours a day. | | | 12 hours a day. | | | 13 hours a day. | | |
|---|---|---|---|---|---|---|---|---|
| Months. | Average hours worked. | Production per hour, oz. | Months. | Average hours worked. | Production per hour, oz. | Months. | Average hours worked. | Production per hour, oz. |
| January . | 10·76 | ·957 | March .. | 11·57 | ·939 | May .. | 12·74 | ·921 |
| February . | 11·13 | ·966 | April ... | 12·24 | ·925 | June | 12·87 | ·939 |
| November | 10·97 | ·939 | August . | 12·28 | ·937 | July ... | 12·64 | ·921 |
| December | 10·64 | ·946 | September | 11·84 | ·927 | | | |
| | | | October .. | 11·39 | ·922 | | | |
| Total .. | 43·50 | 3·808 | Total ... | 59·32 | 4·650 | Total ... | 38·25 | 2·781 |
| Average ... | 10·87 | ·952 | Average .. | 11·86 | ·930 | Average ... | 12·75 | ·927 |

3·22 per cent. over 12 hours' day. 3·54 per cent. over 13 hours' day.

## WITNESS No. 281.

MR. J. CUNINGHAME, *Mechanical and Electrical Engineer, Kastoorchand Mills, Dadar.*

### WRITTEN EVIDENCE.

Mechanical Engineers

*Q.* 54. I am not acquainted with the standard of examination for mechanical engineers in any other province than Bombay. I should certainly say that measures should be adopted to make such tests uniform throughout India. The knowledge required to run a boiler, and that is solely why examinations were introduced, is the same, no matter in what part of the country the boiler may be placed. If it is necessary in one district it is equally so all over the country.

The recognising of each other's certificates by the different administrations would be an advantage and should the standard of examination be made uniform there could be no possible objection to doing so.

*Q.* 55. The whole of India should be brought under the same regulations and it should be made compulsory for every engineer in charge of boilers to hold a certificate.

With regard to the training of engineers, theoretical training obtained at the technical college is excellent, but where the great majority of engineers fail is in their practical training. At present a student who completes a three years' course at the college and one year in a factory or workshop is allowed to appear for the examination. The practical training they get in that one year is practically *nil* as they usually go as pupils and walk about doing nothing.

After obtaining certificates as 2nd class Engineers, a great many, who are unable to obtain a situation in charge of boilers, put in another year as unpaid assistants with no responsibility whatever simply to get in the time necessary to enable them to appear for the 1st class examination. In my opinion the regulations should be altered so that every man before being allowed to sit for the 2nd class examination, must prove that he has served an apprenticeship of at least four years in an engineering workshop or large factory. If he has also passed the college course I would reduce the time of apprenticeship to three years, certainly not less.

No matter how good a technical college may be it cannot provide, and I do not think in any other country than India, it was ever intended to provide, the practical training necessary for an engineer. The great drawback to making practical engineers of the young men of India is the opinion almost universally held that manual labour is degrading and brings them down to the level of coolies. Until they get rid of this idea no system of training under the sun will make them practical and useful members of the profession.

### ORAL EVIDENCE, 12TH NOVEMBER 1917.

*President.*—*Q.* How long have you been in Bombay? *A.* About twelve years.

*Q.* Is that also your total experience of India?—*A.* Yes.

*Q.* So that you are speaking from the point of view of a mechanical and electrical engineer of twelve years' experience?—*A.* Yes.

*Mr. C. E. Low.*—*Q.* With reference to the question of tests for engineers in charge of boilers you know the position in Bengal? They do not have such a thing? *A.* No.

*Q.* And they say that they had practically no accidents and they are quite satisfied with the position. If you have a standard of examination for all India, do you suggest, without entering into the merits of the Bengal statement of the case, that they ought also to have the examination? *A.* If it is necessary here, it is necessary there.

*Q.* How would you achieve sufficient uniformity to induce the different local Governments to accept one another's certificate? *A.* If the Government could lay down some standard, as the Board of Trade do.

*Q.* Do you mean that the Government of India should lay a certain standard to the local Governments for their examining bodies to follow? Do you think in that case that the examination would be to such an extent uniform among the different examining bodies that the local Governments would accept one another's standard?—*A.* Yes, I think so. I see no reason why it should not be so. It is only a question of practical experience.

*Q.* At present you say the local laws are not different and nominally the standard is the same, but in practice the local Governments do not accept one another's certificate? —*A.* Yes.

*Q.* Do you think as a matter of fact that that can be done without either a single law for all India, or a central examining body?—*A.* Yes.

*Q.* Have you ever served on any of these examining bodies?—*A.* No.

*Q*. Are the examiners in Bombay officials or non-officials?—*A*. Some of them are non-officials.

*Q*. Have you had any experience in employing the passed pupils of the Victoria Jubilee Institute?—*A*. Yes.

*Q*. What is your opinion of them?—*A*. Some of them are quite good.

*Q*. Straight from the college?—*A*. They could not earn any wages then. I have taken them as pupils.

*Q*. How long after are they fit for commercial work?—*A*. They come to us only to put in the twelve months' time to pass the Boiler Act examination.

*Q*. Is the period of twelve months sufficient to make them of commercial use?—*A*. The examiners think so.

*Q*. That is to say, you do not employ them commercially until you have had them for some years?—*A*. According to the Boiler Act, an Engineer must have a certificate whether he does work or not. He has a certificate and that is all he wants.

*Q*. How many men have you tried?—*A*. Two or three dozen.

*Q*. Have you had *ex*-pupils who had put in a certain amount of commercial training, under you?—*A*. No. One or two have put in their time in the technical college.

*Q*. How do they shape?—*A*. Some of them were quite good.

*Q*. What is your idea about college training in mechanical engineering? The matter is put to us in this way that after training in an institute or an engineering college the man does not like these factory hours and he cannot tell until he is put on a practical job whether he is suited for work as a mechanical engineer and whether it is the kind of work that he wants to do, and it is therefore suggested that before going to any engineering college or institute he should put in a couple of years under factory conditions?—*A*. It would be better for the students. They would be more useful men.

*Q*. Do you think that many of these men would submit to that?—*A*. Some of them are quite keen on the manual work.

*Q*. Very few of them come from the high schools?—*A*. Yes.

*Q*. You mean they come from the fitter class?—*A*. Yes.

*Q*. I was looking rather at the kind of man who ultimately rises to a more responsible job in charge of a workshop or engineering works, or as foreman?—*A*. It depends on the man's ability. He works his way up from a fitter's place.

*Mr. G. A. Thomas*.—*Q*. You say in your answer to question 55 " In my opinion the regulations should be altered so that every man before being allowed to sit for the 2nd class examination must prove that he has served an apprenticeship of at least four years in an engineering workshop or large factory. If he has also passed the college course I would reduce the time of apprenticeship to three years, certainly not less." Do you propose that at the end of apprenticeship he should get a certificate saying that he has worked satisfactorily?—*A*. Yes.

*Q*. From whom?—*A*. From the factory in charge.

*Q*. And such a certificate will have a value in securing appointment?—*A*. Yes.

*Q*. Have you ever considered the question of mill ventilation?—*A*. No.

*Mr. A. Chatterton*.—*Q*. With reference to your answer to question No. 54, do you consider that it is necessary to have an examination for boiler attendants? Could it be abolished?—*A*. We could get along very well without it.

*Q*. I suppose in your mills you have a battery of boilers?—*A*. We have nine different mills.

*Q*. How many of these certificated boiler attendants do you employ?—*A*. The engineer in charge of the mill has got to have a certificate.

*Q*. You have one certificated man for the whole lot, irrespective of the number of boilers or the size of them?—*A*. Yes.

*Q*. You speak of this examination as examination for mechanical engineers?—*A*. They are held under the Bombay Boiler Act.

*Q*. They are not mechanical engineers?—*A*. They have got to be engineers. They are examined in engineering, in everything connected with boilers and steam engines.

*Q*. Where do these men get their theoretical training?—*A*. Some train themselves, but most of them go to the technical college, *i.e.*, the Victoria Jubilee Technical College. If the boiler is a small one a man of the second class certificate is sufficient. A second class man gets Rs. 60, and a man with the first class certificate gets Rs. 120 or 130 and goes right up to Rs. 500.

*Sir F. H. Stewart*.—*Q*. There are plenty of these boiler attendants—candidates for certificates?—*A*. Yes.

*Q.* And there is no fear of dearth by having the regulations more strict?—*A.* No.

*Hon'ble Sir R. N. Mookerjee.*—*Q.* When were you at home last, or were you all the time in India?—*A.* I have been home in 1910 and 1913.

*Q.* What is the latest practice in England? Does the mechanical engineer go to the workshops first and then to the engineering college?—*A.* In many places they do both. Most apprentices go to a night school two or three times a week.

*Q.* Both theoretical and mechanical?—*A.* Yes.

*Q.* How do they do? Once a week or twice a week?—*A.* Some of the large firms have started classes for their apprentices which they attend during working hours for an hour or two in the morning.

*Q.* Some of these mechanical engineers have risen to highest positions as managers, etc. They went through the workshops first?—*A.* Yes.

## WITNESS No. 282.

### KHAN BAHADUR NUSSERWANJEE RUSTOMJI MEHTA, *Merchant, Karachi.*

*Khan Bahadur N. R. Mehta.*

### WRITTEN EVIDENCE

### *Sind Fisheries.*

I propose to confine myself to placing before the Industrial Commission my opinion relating to the question of Sind Fisheries. For this purpose I propose to give my views in a connected statement for this subject.

2. I would first invite perusal of the accompanying copy of a memorandum (hereto appended) which I submitted to the Collector of Karachi, in the year 1912, embodying brief observations on a scheme for deep sea fishing by means of steam trawlers off the Sind coast.

3. As the Commission state that they will naturally attach importance to the practical experience and special knowledge which witnesses have acquired of the matters, regarding which they offer opinions, I may state that I have been engaged in mercantile and industrial pursuits in Karachi and Sind for a business lifetime extending over forty years. I have studied the question of Karachi fishery for over thirty years, both from the industrial as well as the business point of view, and place my views before you for due consideration.

4. I do not propose again to go over the ground covered by my memorandum previously referred to of which a copy is appended. The following figures bring up to date the value of the exports of salted fish from Karachi:—

| | Lakhs. |
|---|---|
| 1875—80 | 1½ |
| 80—85 | 2½ |
| 85—90 | 3⅓ |
| 90—95 | 4·8 |
| 95—1900 | 4·7 |
| 1900—05 | 6·2 |
| 05—10 | 18·6 |
| 10—15 | 30·5 |

5. The large trade in salted fish is carried on principally with Bombay, Ceylon, Rangoon, the Persian Gulf and the east coast of Africa. In addition, large quantities of the dried bladders of the "Sua" fish are exported to England and Europe. The bladders fetch locally about a rupee a piece and the prices commanded in the London market before the War ranged from 3 shillings to 3/5 per lb., wholesale. These fish bladders are turned into isinglass and gelatine. In the cold season a large business is done in fresh fish and oysters with the up-country market. The fish is packed in ice and sent to the chief stations in the Punjab, Baluchistan, the North-West Frontier Province, and the United Provinces. Karachi oysters have been known in years past to be a daily item of the tables of heads of provinces and at Viceregal Lodge in Calcutta and Simla. There is of course a large consumption of fresh fish in Karachi and neighbourhood all the year round.

6. The complaint now-a-days is that fish is not available in as large quantities as it was in the past, and that the prices have risen enormously.

7. The first complaint of deficient supply may be partly due to the fact that the salt curing business is more lucrative and that the up-country demand is larger. These factors would also tend to raise the price. Certain it is that the oyster beds have been depleted in the past by reckless pickings of even immature oysters and this has led to the exhaustion of the bivalve. Attempts are now being made by Government to conserve the beds by artificial breeding and by preventing the removal of none but mature oysters.

8. Personally, I am of opinion that the present unsatisfactory economic condition of the fish industry in Sind is due to the following causes:—

(1) The indebtedness of the entire fisher folk to the fish merchant, who is also the money-lender of the community and to whom the fishing boats, the fishing tackle and often the catch itself is mortgaged.

(2) The primitive methods which still prevail in the local fishing industry and the entire absence of steam or motor power.

9. As a remedy for the first of these two evils I suggest that measures should be taken by Government as soon as possible to start a Co-operative Credit Society amongst the fisher community.

10. The remedy for the second condition of affairs is the initiation of European methods of deep sea fishing with steam trawlers and motor boats. In this connection the question of course arises whether the initiation of modern methods should be left to private enterprise or whether the Government should take the lead. I do not think it practicable for the present to induce capitalists to enter this. What is required is a demonstration unit which should be launched by Government for the development of the fishing industry on modern lines. In the agricultural world the necessity of model demonstration farms has been recognised both in Europe and in India. It must be the same in the case of fisheries. The Japanese fisheries may be cited as an instance. The Japanese Government desired to introduce up-to-date methods in their fisheries. Several Japanese fishermen were sent to England. Arrangements were made for them to acquire experience with the Grimsby deep sea trawlers; after acquiring practical experience there the men returned home and were placed in charge of a couple of Grimsby trawlers, which the Japanese Government purchased for work in their own waters. This was the beginning of a large and profitable business in connection with the Japanese fisheries. Several larger fishing companies have been started in Japan, a large fish canning industry is now prospering and Japanese tinned fish will presently find its way into India.

11. In present circumstances, however, the possibility of introducing steam trawlers is outside the scheme of practical politics for the next five years at least. Is it possible to introduce? I think it is. The deep sea-sailing boats of the Karachi fishermen are ordinarily larger and faster than the boats used on the western coast of India. The boats leave the harbour about four in the morning. Often tide and wind is against them and it is not possible to arrive at the best fishing ground in time. The catch is thus diminished. It is necessary for the boats to return to land with the catch in a comparatively short space of time to prevent the fish turning soft or bad. This is possible only if the fishing boats are fitted up with "rowing" engines as well as equipped with modern nets and gears. It ought also to be possible to provide a steam oil engine or motor launch to take over the catch from the boats and convey it to the harbour within a few hours of the nets being drawn, while the sailing boat fleet still remains at the fishing grounds. Karachi now has a river craft construction yard; the local engineering firms are building barges. It ought not to be impossible to fit up engines in the local boats but the initiative, as I have said above, must come from Government. Once the advantages of the scheme are demonstrated, the methods will be quickly copied.

12. Once the up-to-date methods of fishing are adopted, it will be easy to demonstrate and educate the public about several by products, such as oil, gelatine, glue, etc.

13. From an article on "inshore fisheries" in the issue of the *Quarterly Review* for July 1915, I notice that a departmental committee was appointed in England in 1914 to consider the question of the development of the British fisheries. There is a great need for the appointment of a similar committee in India. But the following extracts from the article in the *Quarterly Review* are of application, *mutatis mutandis*, to local conditions:—

> "No rent is paid for the use of the sea; fish cultivate themselves; and nationally speaking, fish food is the one import we do not pay for. As in mining, the invested capital is used not for creating, making or growing the commodity but only for winning it from the sea; and, in addition, unlike mines a fishery, instead of becoming exhausted, replenishes itself. In consequence, gross and nett profits approximate more nearly than in any other industry, and more nearly in the inshore than in the great steam fisheries; for though the steamer, with its wider range and its power of keeping the sea and fishing it, does in fact earn greater profits, on the other hand its outgoings in first cost, interest and capital, depreciation, and working expenses are also far greater: so that what may be termed its fishing profits—those which remain within the fishing community—form a smaller proportion of its gross profits than in the case of inshore craft."

Steamer owners may get a good return on their invested capital; an inshore owner may, with reasonable luck, expect to earn his living, and pay his mate's share, out of a boat and gear costing, perhaps, £100. In no other trade (except that of living on one's wits) will so small a capital investment produce so much livelihood; for, though the earnings be small, in no other trade are what may be called the man earnings—the joint earnings of capital *plus* labour—relatively so great.

There, in part, lies their surprising toughness against adverse modern conditions, and also their economic strength, provided they can so be reorganised that a due proportion of the worth of the catches shall go to the fishermen themselves. It may also be pointed out that, since the upkeep of a small fishing boat and gear costs little, the larger proportion of its earnings are spent by the crew in their own locality; whereas in lodging houses and shops the larger proportion of the gross earnings goes to landlord and wholesaler. Hence, turnover for turnover, the relatively high value of a fishery to its own locality; it brings so much of its earning in, and sends so little out. I do not, however, mean to convey that the inshore fisheries are in a profitable or flourishing condition. Far from it. If fishing is, economically speaking, nearly all profits, it does not follow that the profits, in practice, are as great as they might be, or that it is the fisherman who secures his proper share of them. What I do wish to make plain is, first, that there are sound economic reasons for reviving the inshore fisheries, and secondly, that they are capable of revival, inasmuch as in their economic advantages are fundamental, and cannot be taken away, while their commercial disabilities are incidental and remediable.

Motors represent a compromise. They increase the capital cost of fishing and also running expenses. On the other hand, that increase is not great—not so great, for example, as to necessitate shore ownership of boats. Motors enable fishermen to get to the fishing grounds quicker, to fish in calms, to catch markets and fish trains better; and by saving time and labour they enable more fishing, or more sorts of fishing to be done.

The complaint of the youngsters against fishing is, that the earnings do not balance the hardships; were the earnings better, they would put up with the hardship readily enough. By increasing the earnings and by decreasing the excessive labour, especially in getting to the grounds and in hauling aboard drift nets and long lines, as well as by adding a mechanical interest which appeals to youth, motors undoubtedly attract young men to the work. Where they have come into use, the fishermen say they would rather lose their boat than their engine. The process of conversion is always the same. At first the motors are regarded as useless, at least for the particular fishery in question; then one or two men try them, often none too successfully; more then try; the technique of motors for the particular fishery is mastered as soon as the best men have them. Finally crews for non-motor boats become hard to get, and in a wonderfully short time the whole fleet is converted to motor power. It is mainly the coming of the marine motor which makes the present seem a specially favourable time for initiating a revival of the inshore fisheries.

*Organisation.* In dealing with shore business, the committee, as may be seen from the guarded yet emphatic language of its reports, was treading on quick sand. For the provision of boats, motors and gear it recommended co-operative credit and trading, or in the last resort, state aid on the West Cornish model. In fishery finance a closer investigation around the coast has revealed the fact that in some of the ports, at all events, fishermen who borrowed money for boats and gear have been accustomed to pay interest (at from 5 to 10 per cent.) not merely on their outstanding debt, but on the whole sum borrowed, till the last penny has been repaid. Thus, a fisherman who had borrowed, say Rs. 200, and had repaid Rs. 190 would still be paying interest not on the outstanding Rs. 10, but on the whole Rs. 200. And when such mortgagee has been a middleman or dealer, the fisherman has usually been tied to him for his gear or fish selling or both. Co-operative credit with the publicity of its juster terms may be relied upon to put an end to this abominable system of skimming the financial cream off fishing.

But State aid and care—the preservation and development of fisheries and fishing methods, scientific research, the provision of harbourage and the installation of motor power—will prove useless to the fisherman himself, perhaps worse than useless, unless he can be placed in a position to secure his due share of the increase. At present he is not even in a position to secure the fruits of his labour, such as they are. To the Departmental Committee only one remedy appeared feasible:

“At a considerable number of inshore fishing stations, it is admitted that practically the whole of the fish buying is in the hands of one man, without competition. . . Under such condition the only check on the power of the buyer is that to live himself he must let the fisherman live. . . We are left with a strong impression that the inshore fisherman's means and methods of disposing of his fish are highly unsatisfactory. We believe that the only remedy is the improved organization of fishermen with co-operation as its basis; and we may remark, in passing, that fish merchants who are at present giving the fishermen a proper price for their fish can have little to fear from it.”

### Finally the Committee Recommended

“The immediate formation of a Fisheries Organization Society for the purpose of spreading among fishermen the principles of co-operation for credit, for better business in fishing and marketing, and for other purposes incidental to fishery development. In the first instance, at all events, the formation of such a propagandist society should be assisted, if not entirely financed, by national funds and its work inspected by the Resident Local Inspectors above recommended."

The development of the local fisheries on modern lines will be up-hill work it is true, but if the problem is seriously tackled the results will be highly interesting and abundant in reward and a local industry of very large proportion will have been established.

## BRIEF OBSERVATION ON A SCHEME FOR DEEP SEA FISHING BY MEANS OF STEAM TRAWLERS OFF THE SIND COAST.

Anyone possessing the slightest acquaintance of the marine fishing industry carried on off the Sind coast cannot fail to be impressed with the wonderful fertility of the waters round and about the Sind sea coast line in every variety of edible fish and at the same time to note how remarkably behindhand are the methods followed locally in exporting this wealth of the sea.

The late Mr. E. H. Aitkin who, as Chief Collector of Customs, had admirable opportunities for forming a correct estimate of the value of the fishing grounds off the Sind coast officially recorded the following remarks on the subject in the last issue of the *Sind Gazetteer*:—

### *Sea Fisheries.*

There are probably few shores to which fish resort in greater number and variety than the coast of Sind. The Indus, one of the few rivers in India, which flow all the year round and one which is as yet obstructed by no weirs, attracts those species, like Palla, which breed in fresh water, while the food which its many mouths pour into the sea brings together countless small fry, which are food in turn to many predacious species. Others, like the sardine of migratory habit, pass by periodically in countless shoals. For these reasons the fisher's craft has been carried on at and about Karachi from time immemorial on a scale so much in excess of local requirements that the salting of fish for export has also become a great trade. The Amirs raised a revenue of from Rs. 4,000 to Rs. 7,000 by farming out the right to fish, with the result that the fishermen became virtually slaves of the Bania contractors. The farmer could levy his dues in either money or kind according to a tariff truly oriental in its complexity and much too long for reproduction here. The fishermen were also subject to about ten different cesses of a miscellaneous nature, the collection of which must have maintained a host of harpies; Q. E. F. The British Government, in the hope of improving the condition of the fishermen, abolished the contracts in 1846 and adopted a system of licenses, but, this proving very unremunerative, the fisheries were again sold by auction in 1851.

In 1858 this system was again condemned and licenses were issued to fishing boats on fees which ranged from Rs. 3 for a toney to Rs. 5 per ton on larger craft. Having paid this fee, the owner of the boat was free to fish where and as he pleased. This system continued until 1884, when fishermen were relieved of all special taxes in view of the deplorable condition into which their trade had sunk, since the abolition in 1867 of the import duty of 7½ per cent. on salted fish. This had exposed them to a ruinous competition from the Mekran coast, where there was no duty on salt. To meet this an import duty of 12 annas a cwt. was imposed by the Tariff Act of 1875 on salted fish imported into any part of the Bombay Presidency excepting Sind, which gave the Sindhi in its turn an unfair advantage over the fishermen of the Bombay coast, whom he could undersell in their own markets, for the duty on salt was only 8 annas a maund in Sind, but Rs. 1-13-0 in the rest of the Presidency. Three years later, however, the Bombay salt duty, which had in the meantime been raised to Rs. 2-8-0 a maund, was extended to Sind, and the tariff of 1882 repealed the import duty on salted fish from Mekran and elsewhere, with the speedy result that the Government of India was moved, in view of "the virtual destruction of the fish salting industry in Sind" to insist on an experiment being made with yards in which salt should be issued to curers at cost price. By Bombay G. R. No. 8895, dated the 11th November 1884, the opening of four such yards was sanctioned. Three of them proved impracticable, but one was started on the 1st of May following, at Shamspir, within the limits of Karachi harbour, and has been maintained successfully to the present day, the average issue of salt per annum being 860 maunds and the outturn of fish 5,235 maunds. At present salt was issued at 8 annas a maund, but as this did not pay actual expenses the rate was raised to Re. 1 a maund in 1896. In May 1904, another yard was opened at Khada, close to the fish market on the west of Karachi city, at which, in the eleven remaining months of that official year, 959 maunds of salt were issued and 14,672 maunds of fish cured. Measures are also taken to encourage curing with duty paid salt, which is carried on extensively at Rohri in the creek east of Ghizree Bunder, and at Kund in the Mutni Channel, not far from Keti Bunder, and on board fishing boats. Permits to store salt at the two places mentioned are granted by the Collector of Karachi under section 38 (2) of the Bombay Salt Act, and a Customs munshi is appointed to control the traffic at each place, as well as by the Collector of Customs similar permits are issued to fishermen desirous of curing fish on their boats. The aggregate quantities of salt for which permits were issued to fishing boats in 1904-05 was 838 maunds.

The effect of all this oscillations of the fiscal pendulum on the fishing industry may be fairly gauged by the following figures showing the value of total exports of salted fish from Karachi for each quinquennium since 1855-56:—

| | Rs. |
|---|---|
| 1855—60 | 1,04,508 |
| 60—65 | 1,69,418 |
| 65—70 | 2,19,783 |
| 70—75 | 2,00,700 |
| 75—80 | 1,66,975 |
| 80—85 | 2,47,379 |
| 85—90 | 3,30,214 |
| 90—95 | 4,82,176 |
| 95—1900 | 4,74,579 |
| 1900—05 | 6,26,610 |

Allowances must be made for the inclusion in these figures of an uncertain proportion of fish from Mekran re-exported.

It must not be supposed that the advance in the fishing and fish-curing industries evidenced by the above figures indicates a proportionate advance in the prosperity of the fishermen. When Dr. Day wrote his great report on the sea fish and fisheries of India, 1873, he was informed that the fishermen in Sind all borrowed money to purchase boats and nets, entering into a bond, with the creditor, to deliver their captures to him at half the ruling market rates; and their condition is very much the same at the present day. Their boats, if not actually owned by Khojas and Banias, are mortgaged to them on terms which usually include a right to the produce of all the fishermen labour at a fraction of its value. The salting at the Government yards is entirely, or almost entirely, in the hands of a few wealthy men, who have the mass of the fishermen in their grasp and derive more benefit from the benevolent intentions of Government than the objects of them do.

Instead of any improvement being noticed in the Sind Fish Industry in recent years there is unmistakable evidence of retrogression from the standards previously attained. The acknowledged depletion of the Sind oyster beds may be cited as an instance in point of the evils of haphazard methods and the failure of immature conservation. The Sind creeks a few years ago produced edible oysters in great abundance: their collection and despatch constituted a lucrative minor industry in the district and earned for Karachi, whence they were forwarded all over the north of India, to the Viceregal banquet tables of Simla and Calcutta, and to Bombay, a pre-eminent reputation for the excellence of its oysters. The bivalves were exported in season and out of season at the rate of over 500 dozen per diem and were sold in up-country markets at the absurdly low rate of a pice each, and locally at an anna a dozen. At present, they are available in quantities not sufficient to meet the demand of the local market, which demand is now enormously restricted owing to the price rising to as much as 6—8 annas a dozen.

Similarly with the fish trade when the Karachi Ice Factory first started some 35 years ago, the firm of Messrs. Nusserwanjee and Company acted as the lessee and sole buying agents of the entire outturn of the factory. The firm then initiated the business of supplying fresh fish preserved in ice to the clubs, messes, and private houses in the out-stations of Sind, the Punjab and Baluchistan. The business grew. The competition increased. Improved methods of packing have reduced the cost of preservation and transport, but the supply is not equal to the demand for choice varieties and the cost of placing preserved fish at the doors of up-country constituents has risen so enormously as to make the indulgence of Karachi fresh fish a luxury within the reach of only the well-to-do.

Again the economic position of the fishermen is deplorable, perhaps worse off than ever. There are in all about 600 vessels of various tonnage ranging from the small one oared toney to the large 10 ton deep sea fishing smack engaged in the fishing trade. Very few of these boats are owned by the fishermen themselves. Almost all are in the hands of wealthy Khojas, who finance the fisherman at exorbitant rates of interest and reap excessive middlemen's profits. The causes of the present condition of affairs are in my opinion not far to seek and I speak with many years of personal acquaintance with the trade. We are a century behind hand in our method. The fishing industry is now carried on, when Karachi is the fourth largest port in India, on very nearly the same lines as obtained when she was a fishing village before the conquest of Sind. Private enterprise has waited on Government experiment. There have been no signs of Government activity in this side of India and old time conditions prevail, the fishermen themselves being obviously not in a position to make new departures of any importance.

On the other hand, the natural advantages of the fishery are enormous.

Fish of every description abound in the adjacent coasts and creeks: the delicate sole and much sought after prawns are to be had in large quantities all the year round, whereas they are available in the other large ports of Bombay, Calcutta and Colombo during certain limited seasons of the year: the salmon and seer which also abound is of a particularly fine quality and is also available practically throughout the year: so also is the sardine to be had in abundance all the year round. A large and profitable business is carried out between the months of December and March in the " Sua " fish, a variety particularly valuable for a by-product, the bladder, which is extracted, dried and exported to Europe and Hong Kong for the manufacture of isinglas and gelatine. The bladders fetch from 3 shillings to 3/6 per lb. The fishing grounds are some miles out at sea, too far to bring in the whole haul to port in good condition, so after extracting the bladder the fish itself is thrown back into the sea.

Even under present acquainted methods a large drying and salting business is carried out and the quantity of salted fish exported from Karachi during the past year amounted to the commodity being sent not only all over India, but to Africa, Mauritius, Persia, Arabia, Mekran and Afghanistan.

Dry fish is the staple food of the people on the extensive littoral of the Arabian Sea and a ready market is thus to hand in the immediate neighbourhood for a large fish consuming population. The present supply is lamentably short of the demand and this is chiefly due to the inability of the fishing craft to get to the fishing grounds in time and to quickly convey the catch back to land.

After the demonstration in Ceylon and Madras of the value of fish as a manure a demand is arising for fish and prawn shells for manurial purpose. In the beginning of this year a sailing ship conveyed from Karachi to Colombo a full ship load of dry prawn shells.

A demand is also arising for fish oil. Similarly the river and inland fisheries need attention, particularly the famous Palla fisheries on the river Indus.

I will now proceed to state briefly the remedial measures I would propose with a view to improving local conditions and securing for Karachi and her trade a larger toll of the teeming wealth of the waters of the Sind coast. My idea is that a syndicate should be formed with the following objects:—

(1) To introduce as an experimental measure one or two steam trawlers.

(2) To introduce and demonstrate to the fishermen the value of motor or steam power of no great size but of sufficient speed to convey their boats to fishing ground in proper time and to enable fish alive or recently dead to be brought in at any time and with the least possible delay either for transport inland as fresh fish or to the curing yard.

(3) To introduce and demonstrate the better treatment of fish when caught, especially the methods of preservation of fresh fish alive at sea in simple mechanical contrivances such as wicker cages, chests and wells.

(4) To establish an up-to-date preserving and curing yard and a canning installation.

(5) To organize and develop the inland fresh fish trade to such an extent as will induce the railway company to provide cold storage or even special refrigerating cars or motor vehicles.

(6) To organize and develop the manure and fish oil industry.

One predominant factor essential to the scheme I enumerate last as it will rest with the Port authorities to provide, *viz.*, the provision of an up-to-date fish quay in the immediate vicinity of the site most suitable for the erection of the fish-curing and packing premises referred to above.

The scheme is a comprehensive one, which will involve a capital outlay, roughly estimated, as follows:—

| | | Rs. |
|---|---|---|
| (1) | Two trawlers with European crew for one year | 10,000 |
| (2) | Motor or steam carriers | 1,000 |
| (3) | Preserving apparatus | 500 |
| (4) | Curing and canning yard | 5,000 |
| (5) | Packing and forwarding premises | 1,000 |
| (6) | Oil-pressing installation | 1,000 |
| | Margin | 1,500 |
| | Total | 20,000 |

For the last five years efforts have been made to induce European capitalists familiar with the modern fish trade in England to participate in a syndicate which it is proposed to form in Karachi to develop the local fish industry on the above lines, but these efforts have failed. European interest and experience is sought as in an industry of this nature knowledge is required which is not at present possessed by local capitalists. The very ideas are novel while the technical knowledge necessary for working the ideas into growing industries and the practical and business knowledge needful for pushing the trade are entirely wanting. Advertisements were inserted in the *Fish Trade Gazette* regarding the proposed syndicate and the fertility of the Karachi fishing ground and the wide marks available and an editorial notice was also written in this widely circulated journal, but there was no response. It is not, however, unnatural that English capitalists and fish masters should hesitate to invest abroad in ventures which afford exceeding lucrative returns at their very doors at home.

I am convinced, therefore, and ample grounds have been shown for holding this opinion that Government must give a lead and private enterprise will follow and set the business going.

I accordingly suggest that the Local Government be moved to ask the Madras Government for the loan of services of one of their expert advisers to conduct a comprehensive survey of the fishing industry in Sind, the possibility of working deep sea trawlers and developing the trade on the modern lines indicated above, and last but not least, of improving the economic advantages which will accrue to the fishing community. I have not referred to the important subject of pisciculture. The numerous creeks on the Sind delta are particularly suitable for experiments in this direction.

In the preceding pages reference has not been made to the most recent development of the fish industry, *viz.*, the manufacture of rubber from fish. The far-reaching effect of this discovery need hardly be elaborated. One only need call attention to the boom in rubber shares in Europe last year. In connection with this most recent and wonderful discovery the following extract from a recent issue of the *Fish Trade Gazette* is of great interest as showing the progress in the manufacture of rubber from fish.

*Rubber from Fish.*

His Majesty's Consul at Amsterdam reports that a factory is in course of erection at Ymuiden for manufacturing artificial rubber from fresh sea fish, the process being the patent of a doctor of medicine in Amsterdam. It is claimed that the product has the same qualities as vegetable rubber, and is not affected by benzine or heat. It is calculated that the fish rubber can be produced at one-sixth the cost of real rubber, owing to the cheapness of the process and the manufacture of a valuable by-product in the shape of concentrated tonic food containing "phosphur albumen." The Consul adds that the new invention "should stimulate the fishing industry," but (and we will all be glad to hear it) "need not increase the price of fish to the consumer, as several kinds of inedible fish, usually returned to the sea," will do.

Personally I am convinced of the enormous potentialities inherent in the scheme, but this must first be demonstrated by an expert survey: the necessary capital and facilities will then not be slow in arriving; the scheme could be financed and started and then I confidently predict that in another decade Karachi will become the largest fish trading centre in the East.

*(Khan Bahadur N. R. Mehta did not give oral evidence.)*

---

## WITNESS No. 283.

## THE ASIATIC PETROLEUM COMPANY (INDIA), LIMITED.

*The Asiatic Petroleum Company (India), Limited.*

### WRITTEN EVIDENCE.

We beg to inform you that we doubt whether it would be of very much use to the Commission for a representative of our firm to give evidence before it. You state that you would require evidence especially on questions relating to the tin industry, and we have to point out that from our point of view it is not an industry but only an adjunct to our trade. It is possible, however, that certain facts which we are able to put before you may be of interest to the Industrial Commission.

In the first place, we do not make tins as the output of an independent industry but merely in order to produce a convenient package for placing our own products on the market.

*The Asiatic Petroleum Company (India), Limited.*

During 1914 for this purpose this Company alone at its factories thoroughout India made upwards of 10,000,000 tins and in 1915 the output was 9,500,000. The great majority of these tins are used once only as a package for our products, and a very considerable business has grown up for dealing with these packages second-hand. The chief purpose served by the second-hand package is the transport of *ghee*, *goor*, molasses, tobacco and country oils generally, and, as the manufacture of tins especially for these purposes is not large, it may be said that the industries connected with these products are very largely dependent upon the output of kerosene packages by the oil companies. In normal times the supply of tins obtainable from the kerosene trade has shown no signs of being otherwise than sufficient to meet the demand for the purposes above described, but during 1916 there have been indications that in some parts of India this is not altogether the case. It may, however, be assumed that in normal conditions the increasing supply of tins necessary for the kerosene trade, as it expands, will be able to keep pace with the increasing demands for second-hand tins.

An important aspect of the question is that the entire supply of tinplates from which tins are made has to be imported from the United Kingdom or America. There is at present no machinery in India capable of manufacturing tinplates. On the other hand, the raw materials necessary for their manufacture can be obtained without going so far afield, steel in India, and tin in the Straits. We are not familiar with the actual process of manufacturing what is known as tinplate, but there can be little doubt that given the requisite machinery the process is unlikely to be one to which Indian labour could not adapt itself. As a small indication of the requirements of tinplates of this Company alone, we may remark that it took approximately 10,000 tons of tinplates to make our output of tins during 1914.

Our general conclusion is that until such time as the requirements of empty tins for *ghee*, *goor*, country oils, etc., outstrip the supply of second-hand tins available from the kerosene trade, there is no likelihood of there being room for an important industry for the manufacture of tins, but on the other hand, there does seem to be room in India for an industry which will supply the tinplates from which the tins can be manufactured.

*(Oral evidence was not given by any representative of the Asiatic Petroleum Company.)*

## WITNESS No. 284.

*Adjutant F. O. Maxwell.*

### ADJUTANT F. O. MAXWELL, *Superintendent, Salvation Army Loom Factory and Industries, Bombay.*

### WRITTEN EVIDENCE.

### *Indian Hand-Loom Weaving.*

Having spent some twelve years in connection with the hand-loom weaving industry in India, the writer has had the opportunity of gaining a first-hand practical experience. He has studied the methods of the weavers in the villages, travelling through Gujarat, Punjab, Kashmir, United Provinces, Bengal, Assam, the Telegu Country and South India, thus becoming acquainted with the various textures woven in the different parts of the Empire, from the coarse cloths of the Deccan, Gujarat and parts of the Punjab, to the fine textures of Bengal and Madura and other districts of the Madras Presidency, as well as the fine silks of Assam. As a result of this experience he has been able to design a reliable, cheap, simple hand-loom suitable for either the coarsest cloth or finest silk, and a loom which is very easy to manipulate, and so simple in construction, that the ordinary village carpenter or blacksmith can easily repair any part, should it be accidentally broken too far away to send to the factory for a replacement.

Nearly 2,000 of these looms have been supplied to customers in various districts of India and Ceylon, also in Kashmir, Burma, the Straits Settlements, Java, China, etc. These looms are also being made (under royalty) by various Government institutions where the freight is excessive owing to the distance from the Salvation Army Loom Factory in Bombay. The looms have been supplied to about 35 industrial institutions of the Salvation Army, including settlements for criminal tribes and homes for boys and girls. A large number of looms have also been supplied to the various prisons in India, and the Inspectors-General and Superintendents have spoken well of the efficiency of these machines, and but for the present curtailing of expenditure owing to the war, a greater number of these looms would have been installed. In one of the prisons where 60 Salvation Army looms replaced the fly-shuttle looms, the outturn per loom went up from 15 yards per diem to 22 yards and the prisoners said they were able to weave these 22 yards more easily than the 15 on the older looms. The Inspector-General of Prisons, Bombay Presidency, in his report to Government mentioned a still larger increase of outturn on the Salvation Army looms with no more exertion. At each of the Industrial Exhibitions at which the Salvation Army looms have been exhibited during the past 12 years, they have carried off medals and prizes both for speed, construction and quality of materials produced.

Having now standardized these looms and built an up-to-date loom factory in Bombay, fitted with electrically-driven machinery for the production in large quantities of Salvation Army hand-looms, warping machines, twisting, and winding machines, etc., the only requirement now to meet the demand is for an arrangement to be made to enable the village weavers to purchase these looms on the hire-purchase system, in the same way that the village *darzi* purchases his " Singer " sewing machine. This could be done through Weavers' Co-operative Societies or Rural Banks, which could purchase the looms from the Salvation Army at factory prices and supply the village weavers on the instalment plan.

### *Warping.*

Besides making a cheap and effective hand-loom, the Salvation Army have also devised a warping machine which enables the weavers to turn out warps in sufficient quantity to meet the demand of the rapid weaving of the improved looms—one man and a boy being able to supply warps for from 15 to 20 weavers, thus enabling the weaver to proceed with his operation of weaving almost continuously, instead of spending one-third of his time in warping. Also by the production of long warps (similar to those used in the mills) there is a great saving of time which is usually spent in " piecing " the short warps used in the villages, in addition to saving a considerable quantity of materials at the joins.

Should the members of the Industrial Commission be able to pay a visit to the Salvation Army Loom Factory at Bombay, the writer could arrange to be there to give any further information required, and also give a practical demonstration of the working of the loom and warping machine, etc.

I might also mention that the Salvation Army looms are made in different widths to suit the various needs—from 18" up to 86", and in this respect, many of the hand-looms fail, as the wider cloths of say 72" in width cannot be made on them by one operator.

I would also point out that a model of the *power-loom fitted with pedals is not* at all suitable for the average Indian village weaver, as he is, owing to his sedentary habits, not of a robust constitution, nor is he of a mechanical turn of mind, and the writer met several looms of this class, which although they might be useful where stronger men and skilled mechanics were available, were quite useless in the villages.

### *Fly-Shuttle Slays.*

Some authorities in different parts of India have recommended the village weavers to purchase fly-shuttle slays only, in place of the complete up-to-date hand-looms, on the score of economy, but this is only a half measure, and the writer does not favour this, as although the fly-shuttle slay would improve the outturn, it comes far short of the complete installation of an up-to-date hand-loom and warping machine. Moreover, this practice has not been followed in the introduction of the sewing machine in the Indian villages —no one being so short-sighted as to ask the village *darzi* to purchase a Rs. 5 toy sewing machine, and when able to make this pay, then to go in for the "Singer" machine. Why then should not the village weaver be put on the same footing as the *darzi?* Commissioner Booth Tucker's opinion is that he would prefer to buy the complete loom, if he could be helped to raise the necessary capital by means of a loan or through Co-operative Credit Societies.

### ORAL EVIDENCE, 13TH NOVEMBER 1917.

*Mr. C. E. Low.*—*Q*. Where are your headquarters?—*A*. In Byculla.

*Q*. You probably know more about the actual use of the hand-loom by individual weavers in Bombay than in other parts?—*A*. I have been in different parts of India, in connection with weaving. In Ludhiana we have about six hand-looms. I was in charge there for three years. It is really a Weaving School. I was also in Gujarat.

*Q*. Do you know where your loom is being used by individual weavers working in their own houses in Bombay?—*A*. Yes, I saw several in Bombay, but have not got the addresses just now. I can however supply them.

*Q*. Do you know if there are any in use in Malaigaon?—*A*. I do not remember just now.

*Q*. Can you tell me about any cases, which you can recollect personally, how these looms are doing when used by individual weavers in their own houses?—*A*. No. I cannot say personally of any particular institution. My work has been principally in our institutions with the criminal tribes, who do piece-work and are able to earn a living for themselves and their families.

*Q*. With regard to the institution at Ludhiana, is that a school for weaving?—*A*. It is partly a Government one, as Government give us a grant towards the expenses. Government were sending in men and providing stipends for them to be trained as weavers and learn the up-to-date methods, and then go back and work in their own houses. At first they were rather prejudiced against the new looms, but after they had seen the increased outturn, in many cases they bought looms.

*Q*. Are those men of the weaving caste?—*A*. Yes, principally of the weaving caste. Our own experience is among the criminal tribes; the latter are not of the weaving caste.

*Q*. What counts are these people weaving in the Punjab?—*A*. From 20s to about 60s on an average. They do some fine work like cashmere shawls, etc.

*Q*. You have no information as to how they do after they leave your establishment?—*A*. No, except now and again when they write for accessories.

*Q*. Who looks after them after they have left your establishment, the Government Industries Department, or anybody at all?—*A*. They require very little attention afterwards. Occasionally a shuttle may wear out, but they are able to mend them (the looms) themselves, or the local *mistry*.

*Q*. Have you any idea how many such workmen have gone out of the Ludhiana institution?—*A*. No, I am afraid not; but I know that several have taken looms and have gone on with the work successfully.

*Q*. Your impression is that those people who go out—so far as you are able to know—are sticking to it and making a success of it?—*A*. Not many of them take the looms, as the price is against them, and they cannot afford it. The standard size works out to about Rs. 100, it is 46″; the smaller sizes, less—from Rs. 80 to 100.

*Q*. Do you know if the Punjab Government have any arrangement by which loans are given to these people to help them to buy looms?—*A*. They have not.

*Q*. What is the precise object of the Punjab Government in sending people to learn the looms which they are not able to buy?—*A*. That is a difficulty. In the United Provinces they only take in students who can afford to buy the looms; I refer to Barabanki.

*Q*. Barabanki started about 1907 or 1908?—*A*. Yes, I went down there personally and started some looms.

*Q*. Do you know what they are doing now?—*A*. I was there last year. There they send most of the looms into the district. The idea was for them only to have weavers who could purchase a loom; after they had worked on one and had practised on it they took the loom away with them.

*Q*. You don't know, in the case of Barabanki, to what extent the looms sent out are being actually worked by weavers?—*A*. I know that we supplied just over 200 to Barabanki for sending out into the district.

*Q*. My reason for asking is this: in 1910, at the time of the Allahabad Exhibition, when Mr. Chatterton and I were down there, we made local inquiries in Barabanki as to what had happened to the one hundred and odd looms which Mr. Sherring said had been sold. We only found one that was being worked out of 60 which we had examined locally. Do you know if they have improved matters since then?—*A*. No, I have not traced the matter. I was under the impression that they were working.

*Q*. As regards the jail use of looms; they are working on a fairly simple type, at any rate a very homogeneous type of work?—*A*. Yes, plain cloth, prisoners' clothing, etc.

*Q*. And they get large orders all of the same kind?—*A*. Yes, in Midnapore they have over 60 of the looms.

*Q*. And with that they are able to turn out a considerably improved output?—*A*. Yes; for instance with the fly-shuttle looms they have there, the outturn was 15 yards per day per loom; in the Salvation Army looms it was 22 yards.

*Q*. As regards the criminal tribes, you are working against every difficulty, economic, and so on. Do you see any chance of those people becoming self-supporting?—*A*. Oh yes, many of them are. I have just come from Gorakhpore and there are a lot of men there who do piece-work.

*Q*. Of course, you have to arrange for a market for them to sell their goods, because they are not the kind of people that the ordinary merchant would like to deal with?—*A*. The Government are assisting us with depôts in Delhi and Lucknow for distributing this work, and we are able to dispose of all they can turn out so far. They require a market.

*Q*. How do you give your criminal tribesman a start off, so to speak; at what point does he become the owner of the loom and responsible for his own upkeep with the purchases you arrange?—*A*. We have no arrangement to purchase for any of them so far; we simply lend them the loom which remains our property because we cannot afford to wait so long for our money. They are quite satisfied with the work and are earning a good living wage for themselves and their family.

*Q*. I suppose in almost all cases they are men who have never done any weaving before?—*A*. Except in the jails. The loom, however, is so simple that any coolie could work it.

*Q*. How long is it before these criminal tribes are able to earn enough to keep themselves going?—*A*. I should say after about six months' practice. We pay them a day's work up till that time, and after six months a man is able to earn good wages.

*Q*. As regards the assistance allowed to the ordinary weaver in the country to purchase a loom: have you any experience or idea as to the best way of doing that?—*A*. I should say if it is arranged through the Government it would be possible, as they have the machinery at work for collecting the money, so that they could do it at minimum expense. Of course, a wealthy firm like the Singer Sewing Machine Company have their own organization; but if the Government took this up, we should be able to supply the looms to Government at regular reduced rates, and the difference between that and the retail price would cover the interest.

*Q*. How long would it take an ordinary weaver to pay off the cost, with interest, of a one hundred rupee loom, taking into account his increased earnings?—*A*. I should say it should spread over five years.

*Q*. What is the life of a loom?—*A*. I reckon 50 years with ordinary small replacements of actual wearing parts. Very few parts wear out, as for instance a picker and one or two other parts like that.

*Mr. A. Chatterton.*—*Q*. I should like to ask you about this Ludhiana Weaving School in which you say you have 60 looms. Is it run as a purely educational institution, or partly educational and partly commercial?—*A*. Partly educational and partly commercial, because the Government have stopped the grant. They do not pay the grant now.

*Q*. Why not?—*A*. They reckon it ought to be self-supporting, though it is difficult to make the work of instructing people self-supporting. The grant varied sometimes from Rs. 150 a month up to Rs. 300 a month. They paid us more at first to get started, and gradually reduced it to Rs. 150; and have now stopped it altogether.

*Q*. What teaching staff is there in control of this school?—*A*. There is one expert weaving master who has several assistants, who have been trained in Ludhiana, assisting him.

*Q*. The students who come in, what age are they?—*A*. I suppose from 17 upwards; on an average 16 or 17. That is about the average age.

*Q*. Does this school enter into contracts for the manufacture of various kinds of cloth; or does it simply manufacture a certain amount of stuff and put it in the bazaar for sale?—*A*. It manufactures cloth and we have to dispose of it through the Salvation Army branches.

*Q*. What sort of stuff do you make?—*A*. Jharans, all kinds of table cloths, serviettes, napkins, towels, etc. We confine ourselves to things that people in the country can use.

*Q*. Are the students in this school paid any wages, either by day or by piece-work?—*A*. Oh, yes; some of the students are paid by the Salvation Army, small stipends as well as taught. They get Rs. 4 a month towards their upkeep.

*Q*. How much does this institution cost the Salvation Army now, since the Government grant has been withdrawn?—*A*. I cannot say.

*Q*. Do you publish any annual statement of accounts?—*A*. Yes.

*Q*. Could you let us have a copy?—*A*. Yes,* and any particulars you require; only I have not been there for two years and do not remember details just now.

*Mr. C. E. Low.*—I gather that they don't maintain any account of the looms worked by weavers in their own houses. It is no good asking for any report about that.

*Mr. A. Chatterton.*—*Q*. Have you any record of the pupils who go out of the school?—*A*. No, I have not followed that up.

*Q*. You have a loom factory in Bombay?—*A*. In Byculla.

*Q*. Is that working now?—*A*. Yes.

*Q*. How many looms are you turning out?—*A*. It varies; I suppose we turn out something like 150 a year.

*Q*. You say that some 2,000 of these looms have been supplied to customers, since starting this factory in Bombay; does that include the looms supplied to the 35 industrial institutions of the Salvation Army?—*A*. Yes.

---

*Not received up to time of going to press

*Q*. Could you let us have a list of all the institutions that have been supplied with these looms, and the number?—*A*. Yes.*

*Sir D. J. Tata.*—*Q*. How long is it since you commenced building these looms?—*A*. Since 1906.

*Q*. If you turn out 150 every year, and you have supplied 2,000, it does not tally?—*A*. At first we did not turn out so many: it varies so greatly. It is about 2,000, more or less. We could have sold many more, had we been able to give them out on the instalment system, like the sewing machines. My point is why should not the hand-loom weavers have the same advantage as the *darzies?*

*Mr. A. Chatterton.*—*Q*. You have considerable knowledge of what is going on in various parts of India. Have you seen hand-loom weaving in Bengal?—*A*. Yes, I have been right up to Dacca.

*Q*. They are using fly-shuttle looms in that part of the country of an old Danish pattern?—*A*. I did not see many.

*Q*. You also say you are making warping machines; have you made many of them yet?—*A*. Yes, quite a number. One of these warping machines will be able to supply warps for from 15 to 20 weavers.

*Q*. You are supplying warping machines along with looms to your own institutions and to the jails?—*A*. Yes.

*Q*. Have any of these warping mills been taken up by village weavers?—*A*. No, I do not think they have. I should like to have them taken up. It needs a combine. If a dozen combined to buy one warping mill, it would mean a great saving of time.

*Q*. Have you made any experiments in that direction?—*A*. No, we have not.

*Q*. You had a weaving colony in Madras?—*A*. We have a place there now, an industrial home for boys and men, which is still going on.

*Q*. Are they weaving there?—*A*. Yes, we are training the lads.

*Q*. You know the system in Madras as to the giving out of contracts by Madras merchants to these weaving communities?—*A*. Yes, they supply them with the yarn and take the cloth when it is made.

*Q*. Have you ever attempted to enter into that kind of business there?—*A*. No.

*Q*. Would it not be profitable to do so?—*A*. Our difficulty is that if they do not pay up their arrears, we do not like to go to court over matters. That is why we do not take up the instalment system. We have no arrangements for collecting the amounts.

*Q*. You speak of the production of long warps on these machines; what length do you mean?—*A*. Up to four or five hundred yards.

*Q*. What is the length of the ordinary mill warp?—*A*. From five to seven hundred yards.

*Q*. You say, " similar to those used in the mills "?—*A*. It is done on the same system, except that we put it up in sections.

*Q*. How do you do your sizing?—*A*. We have hank-sizing size, and prepare the yarn first (*i.e.*, before warping).

*Q*. You say your looms will work up to 72″ in width?—*A*. Wider than that; we make table cloths up to 80″.

*Q*. You say, " many of the hand-looms fail, as the wider cloths of say 72″ in width cannot be made on them by one operator."—*A*. Yes, any automatic picking hand-loom. They cannot do it with one operator. Hattersley's say they require two men (for 72″).

*Q*. Would you say that that remark applies to the old English hand-loom?—*A*. Fly-shuttle looms? No, I mean the automatic looms.

*Q*. You express the opinion that it is not a good thing to be content with half a loaf instead of no bread, when you come to the fly-shuttle slays?—*A*. I think when the weaver comes to change his arrangements, it is better to give him a proper start. The *darzi* buys one of the most up-to-date machines in the world, the Singer, and why should not the weaver be put on the same footing?

*Q*. Have you worked out what is the pecuniary advantage to the weaver who purchases your looms; have you any statement made out to show how much extra he would earn?—*A*. We have no figures; we take the production. We go by our experience of the criminal tribes; whenever a man is able to work on piece-work, he is able to earn a good living.

*Q*. Would you put it down at Rs. 5 a month?—*A*. The profit? There again it is a business proposition; it all depends.

---

*Not received up to time of going to press.

*Q*. Why I am asking you this question is that it has been worked out very carefully as to what the advantages are in substituting the ordinary fly-shuttle slays for the indigenous slays. That has been worked out and the average comes to 2/8 a month. In the south of India over 100,000 of these slays have been put in in the period that is covered by the ten or twelve years that your loom has been on the market. These 100,000 looms have enabled the weaver to earn another 2½ lakhs a month. Comparing the results obtained, do you still adhere to your statement that you do not favour half measures?—*A*. If they get assisted by Government, they should go the *whole* way.

*Q*. In this case the people have done it without assistance from Government. The cost of your loom is between Rs. 80 and 100, and the cost of the fly-shuttle slay is about Rs. 7. Don't you think it better to spend Rs. 7 and get a decided advantage than do without?—*A*. It does not work out in the case of the *darzies*.

*Q*. The analogy is not complete. An imperfect sewing machine would not work at all, but the difference between a fly-shuttle slay and the most perfect hand-loom is small.—*A*. I differ on that point, because with the automatic action we find in practice that the man can use his two hands and can do more work than where he is beating up with one hand.

*Q*. I notice you say that the Salvation Army loom has obtained medals and prizes at the various Industrial Exhibitions. Is that intended to include the various weaving competitions that were held in different places?—*A*. Yes, at Madras, for instance, we were awarded a medal.

*Q*. As far as I remember, the ordinary hand-loom beat the other loom in speed and quality?—*A*. That might be. In a case like that where you have experienced workers, a good deal depends on the workers. That is hardly a fair test.

*Q*. Do you attribute the fact that another loom got the first prize to the employment of more experienced workers?—*A*. Yes, I found out that a lot of these fly-shuttle weavers had been at it as boys, and had become very expert.

*Sir F. H. Stewart*.—*Q*. Does it not show rather a lack of consecution in your efforts that you take men into your weaving schools and then they have to go out without the looms because they can't afford to buy them?—*A*. In many cases we train the men as weaving masters, and find work for them. That is the case in Ludhiana, we find positions for them. If we get a young man who has some energy and he qualifies in the school, there are always plenty of openings for him.

*Mr. A. Chatterton*.—*Q*. I thought you said you had no record of these people?—*A*. No record of people who go back to their villages. The record I have is of people whom we have trained, and for whom we find work as instructors. We published a record in the Punjab showing the number of men that were trained, and where they were fixed up with work.

*Sir F. H. Stewart*.—*Q*. Have you made any attempt to popularize your looms by sending out weaving masters with looms through the villages to give demonstrations?—*A*. Government did that. We supplied the men and looms, and in that way a good number of people came into the weaving school, and after seeing what we were doing, purchased machines.

*Q*. That experiment met with some success?—*A*. Yes.

*Sir D. J. Tata*.—*Q* I did not quite gather from your reply to Mr. Low who were the customers to whom you sold these looms. You say, " Nearly 2,000 of these looms have been supplied to customers." Have you sold to individual workers, or to your factories?—*A*. Yes, also outside our factories and weaving schools. In the return made up last year 78 are shown as sold outside the Salvation Army altogether.

*Q*. Is there a great demand from individual workers for these looms at all and is the demand increasing in any way?—*A*. Yes, we are selling them more outside the Army than we did before, not counting our own institutions.

*Q*. Later on you say, " This could be done through Weavers' Co-operative Societies or Rural Banks, which could purchase the looms from the Salvation Army at factory prices and supply the village weavers on the instalment plan." Have you tried to approach these societies at all?—*A*. We have had many inquiries for looms; only they were not always able to purchase them.

*Q*. Have you approached any of these Co-operative Societies and pointed out the advantages of these looms?—*A*. Yes, but only on a small scale.

*Q*. Where do you get your warp and weft?—*A*. The settlements provide their own. We do not touch cotton in Bombay much.

*Q*. You say they can weave from 20s to 60s. Do you know where 60s is obtained from; is it imported or local yarn?—*A*. I referred to the kind of yarn that *is used* on the Salvation Army loom.

*Adjutant F. O. Maxwell.*

*Q.* But in your schools?—*A.* In our own institutions they buy it from the nearest mills; in the north they buy it from the Cawnpore Mills, and in Nagpore from the Empress Mills. I cannot say where they get their 60s warp.

*Mr. G. A. Thomas.*—*Q.* Do you claim for your loom that it is fool proof?—*A.* It is pretty nearly so. Wherever we have sent out the loom they have been able to fix it up in the villages.

*Q.* How do you give instructions?—*A.* We send out a book of instructions in English, which the villagers easily get translated.

*Q.* If anything goes wrong, what does the weaver do?—*A.* Hardly anything goes wrong but what they could get put right in the village by the village blacksmith. That is one of the points of the loom, its simplicity.

---

## Witness No. 285.

*Hon'ble Mr. Munmohandas Ramji.*

## Hon'ble Mr. Munmohandas Ramji.

### Written Evidence.

*Q.* 1. Yes, I have experience of the raising of capital for industrial enterprises. I find that industrial enterprises if backed up by good names or by those who have influence attract capital while many a scheme without such a backing up, though good in other respects, languishes because of the want of capital. These difficulties can be removed if the Government guarantee dividends for a limited period to important new industrial enterprises.

*Q.* 2. Savings of people in large cities and also to some extent earnings from speculation are the sources from which capital is drawn for industrial enterprises.

*Q.* 2-*a*. Capital may be raised to some extent from the mofussil also if it is properly tapped by well-known people. Though it is scared by bank failures it does come out for speculation, as was seen only a few months back while the speculation fever was at its height.

*Q.* 3. Ginning factories and presses.

*Q.* 4. I do not know of any financial aid given to any industrial enterprise by Government.

*Q.* 5. I approve of all these excepting (4) and (6). Money grants-in-aid should be given to approved parties only and that too if Government are convinced of the success of the undertaking on the strength of the report of their experts. I do not think it advisable for Government to lend directly to any concerns nor to take up their shares. I specially approve of (3) and (7).

*Q.* 6. In cases in which Government guarantee dividends there may be a Government director, but otherwise the Government supervision must be restricted to inspection and auditing.

*Q.* 7. I have no experience of such.

*Q.* 8. After receiving reports of experts Government may start pioneer factories which may be handed over to private capitalists if successful and closed down if unsuccessful. I do not approve of the conversion of these pioneer factories into permanent Government enterprises.

*Q.* 9. Small industries are hampered by want of financing facilities. These are generally underfinanced and get what capital they have from Shahukars or private capitalists on exorbitant terms.

*Q.* 10. It is possible to give assistance to industrial enterprises by starting industrial banks. (See my notes on this question.)

*Q.* 13. There should be no Government aid to any industrial concern if there are already some concerns carrying on the same industrial pursuits successfully.

*Q.* 14. There should be no limitations on Government aid to a new enterprise even if it competes with an established external trade. It should rather be the Government policy to encourage new industrial enterprises in this country and to discourage foreign imports of manufactured products.

*Q.* 15. I have no knowledge of technical or scientific aid provided by Government to industrial enterprise.

*Q.* 16. The same answer as above.

*Q.* 17. Services of Government experts should be lent on payment of reasonable charges.

*Q.* 18. Results of researches of these experts while attached to a private business should not as a general rule be published but if they are consulted by any other firms or companies afterwards they should not be prevented from giving them out.

*Q.* 19. Government demonstration factories should be established for the following industries :—

(1) Paints and varnishes.

(2) Fibres.

(3) Bobbin making.

(4) Mill stores.

(5) Leather goods such as belting, etc.

*Q.* 22. It will be advantageous to have provision for research in the United Kingdom as long as there is no sufficient facility here.

*Q.* 23. The advisory council for research in the United Kingdom can give assistance to Indian industries by carrying out experiments in directions suggested by them and notifying their results.

*Q.* 24. There is no need for having an advisory council for research here but there should be provision for research work in colleges and other institutions.

*Q.* 28. The commercial museum in Calcutta should be on a far larger scale to be useful.

*Q.* 29. Commercial museums should be organized and developed in all the presidency towns.

*Q.* 30. I have experience of the working of the Swadeshi Stores of Bombay, one of the largest, if not the largest, of such stores dealing in Swadeshi goods in the country. Such stores can be made to pay handsomely if managed well. At the same time they will prove to be factors of great importance in encouraging minor and unorganized cottage industries. They may well be started on a joint stock or co-operative basis. The Commercial Intelligence Department and directors of different industries should be in regular correspondence with such stores.

*Q.* 30-*a*. Travelling exhibitions of such industries will be advantageous.

*Q.* 31. Industrial exhibitions are of educational value principally. I doubt however if they lead to tangible results in industrial development. Such exhibitions should be organized at some of the big fairs held in the country like the Magh Mela at Allahabad and also if possible at places where the annual session of the Indian National Congress is to be held If need be, Government themselves should organize such exhibitions.

*Q.* 32. Answer is given above.

*Q.* 33. Exhibitions should be popular in character and also should aim at bringing sellers and buyers into contact. There should be more side shows at such exhibitions than is usually the case.

*Q.* 34. There should be trade representatives to represent the whole of India in Great Britain, Colonies and foreign countries. They should preferably be Indians knowing the language of the country to which they are sent and conversant with the trade and industrial condition of this country. Their duty should be to send information to inquirers in India, to make known the Indian requirements, in foreign countries as well as to make known their requirements here. Specially there should be facilities for Indian merchants getting replies to their inquiries directly from these representatives through the local Director of Industries.

*Q.* 35. Yes.

*Q.* 36. There is no necessity for different provinces in India to have trade representatives in other provinces.

*Q.* 37. Government departments using imported articles should publish lists of these articles and also exhibit them in commercial museums. Catalogues should be published giving the last tender prices of these articles

*Q.* 38. The rules must be so altered as to give preference to indigenous articles even though they may not be of the same quality as the foreign imported ones but of the same price, and a little costlier in price though of the same quality.

*Q.* 39. See my note on the industrial banks.

*Q.* 40. Government should give special concessions and transit facilities as an encouragement to new industries.

*Q.* 41. Facilities should be provided for acquiring the land for industrial purposes by making an alteration in the present law if necessary. Ample compensation should be given, specially land in any other place if the party so desires, to those who have been required to give up their land for industrial purposes.

*Q.* 44-*a*. The lack of primary education does hinder industrial development.

*Q.* 44-*b*. Very little is done in the textile industry to improve the efficiency and skill of the labourers.

*Q.* 45. Legislative measures ought to be taken to compel large employers of labour to arrange for sanitary housing for at least half the number of their employees.

*Q.* 46. The apprentice system is not much in vogue but where apprentices are taken up the apprentices have to make arrangements with heads of departments of that particular factory for being coached up. I do not consider the result as very satisfactory.

*Q.* 47. Industrial and technical schools may be good for training up men for higher appointments but, so far as I have seen, are not good for training up men for subordinate positions. It would be better for those who want merely to be labourers or jobbers and fitters to join the factories direct and get their training there. They will be readily welcomed owing to shortage of labour found everywhere. Industrial schools will be useful for training up even ordinary labourers and fitters if people who join those institutions were sure of following in practical life the profession for which they are being trained there.

*Q.* 48. I would prefer apprenticeship system and industrial schools to be co-ordinated.

*Q.* 49. Night schools are doing good work in giving education to peons, etc., but are not patronised by mill-hands who have no time. I do not think that day schools are a success. Free primary schools should be started in different centres of commerce and industry.

*Q.* 50. Industrial and technical schools and colleges should be under the control of the Department of Industries.

*Q.* 51. The Sydenham College of Commerce offers a good field for such a training.

*Q.* 52. The State must institute scholarships for this purpose.

*Q* 53. This may be a condition laid down for the grant of concession by the Government to industries. It should operate only for a limited period.

*Q.* 54. There must be an uniformity of standard for these examinations, and the Boilers Act must be an All India Act.

*Q.* 56. There is an Indigenous Industries Committee with a civilian secretary. The Committee is doing good work but I think there should be a regular Department of Industries as in some other presidencies so that there may be a uniform system in the whole of India. The Director of Industries should be a whole-time officer and should be the secretary of this Committee which will nominate its own chairman.

*Q.* 57. See my answer to question 56. The Industries Committee or Industrial Board, by whatever name you call it, should have executive powers with budgetted funds.

*Q.* 58. The present constitution of the Industries Committee is good.

*Q.* 59 and 60. See the above answers. The Director of Industries should preferably be a businessman.

*Q.* 61. The Director of Industries should be the secretary of the Industrial Board which should be an executive body with budgetted funds from the Government.

*Q.* 62. The different Directors of Industries with their boards will be in intercommunication. The present Department of Commerce and Industry of the Government of India will be the Imperial Department for this purpose specially if a special department is created for railways and irrigation as it will be free of the burden of the Railway Department.

*Q.* 62-*a*. This work may be left to the Department of Commerce and Industries.

*Q.* 62-*b*. Government should furnish implements and tools to people engaged in cottage industries on hire-purchase system. The following cottage industries may well be encouraged by Government :—

Hand-loom weaving, cane and rattan work, sericulture, beehive keeping, knitting hosiery.

*Q.* 71-*a*. There should be a central technological institute for the whole of India.

*Q.* 77. Scholarships may be instituted for this purpose.

*Q.* 81-*a* Municipalities and local boards can assist in promoting industrial development by remission of taxes and duties.

*Q.* 84. The *Indian Trade Journal* is found extremely useful by the commercial community, giving as it does, in a compact form, figures and statistics and other commercial information. It should also contain special articles written for different industries and proceedings of different departments of industries (where there is no objection to their publication).

*Q.* 87. These special monographs on industrial subjects cannot be expected to lead to immediate results. I would like however to suggest that they should be published in vernacular also in provinces where there is a likelihood of these particular industries being taken up. There is no facility at present for buying Government publications as no book-sellers keep these in their stock and it takes about a fortnight to get a book from Calcutta. Booksellers on the Government list will be glad to have several principal publications in their stock if they are allowed to remit money as they are sold.

*Q.* 96. I am against the system of registration of partnerships.

*Q.* 98. The sea-ports must not have their trade crippled by railways with their low rates to beat down sea competition.

*Q.* 111. The following new industries are suitable for development :—

Chemical industries, cheap hardware, porcelain ware, mill stores, dyes and colours, and shipbuilding.

*Q.* 112. See my answer to Question 111. Among the causes operating to retard the development of industries may be mentioned the present policy of railway freights, want of Government assistance and unchecked and unhampered foreign competition. I have in my different answers pointed out how these can be removed.

*Q.* 112-*c*. The chemical industry principally.

## *Note on Industrial Banks.*

(This note and the one following were prepared at the request of the Indigenous Industries Committee. They relate specially to this Presidency but I wish that industrial banks may be started in other provinces also and that the Government of India should introduce special legislation like the Presidency Banks Act for these industrial banks.)

1. I should propose that an industrial bank be started with a capital of say Rs. 50 lakhs on joint-stock principle, each share to be of Rs. 100. Government must definitely promise to keep with this bank funds to the extent of Rs. 25 lakhs, *i.e.*, half the capital of the bank through the local Presidency Bank without interest or at a nominal rate of interest not exceeding 3 per cent. This will not be considered unreasonable when it is taken into consideration that before the war the Secretary of State was advancing from the cash reserves with him to even second class London banks at the rate of 2½ and 2¾ per cent.

2. The Local Director of Commerce and Industry should be Government Director. In places where there is no Director of Commerce and Industry, the Government Director should be an officer connected with the Department of Industries or in case there is no such department, he should be an industrialist nominated by Government.

3. Another alternative facility is that in case the above facility is not possible I should like Government guaranteeing the bank to the extent of 4 to 5 per cent. interest on paid up capital in case the bank itself is not able to pay in a single year that rate. The bank will never be, I think, obliged to make use of such a guarantee but its moral effect will be tremendous. The Government will have a lien on the annual profits of a bank for any sums they may distribute in interest under this guarantee clause. If for any one year profits of the bank are not sufficient to pay even the 4 to 5 per cent. interest and Government pay it under this clause they will be entitled to make good the deficit from the next year's profits. Auditors to the bank will be appointed, one by the shareholders and one by the Government, so that the Government will have not only a Director on the Board but also an auditor to scrutinize the working of the proposed bank.

4. Regarding advances to be made by the bank it will be naturally the most important question. I would not at least for the present empower it to underwrite the capital of an industrial concern as they do in Germany. If any industrial concern, whether it is managed and owned by a company or an individual, is working *bonâ fide* and applies to the bank for financial help, advances may be made to it. The form of securities may be of course determined on the merits of each case by the Board of Directors but they may be of the following nature :—

(1) Moveable and immoveable assets of the concern.

(2) In case of a joint-stock company personal security jointly and severally of agents, and in case of private concern personal security of owner or owners.

5. Preference in my opinion should be given in the matter of these advances to small concerns and the average amount of loans must be as low as possible so that middle class industrial concerns and small industrialists may be able to get their needs satisfied.

6. These loans will naturally be long-term loans which is the main distinguishing feature of industrial banks as compared with ordinary banks which, when they advance to industrial concerns, do so for short periods. These short-term loans are, it is obvious, not of much importance to industrial concerns which remain always in fear of the sword of Damocles hanging over them and cannot fully develop their resources. Another agency through which the industrial concerns are financed at present is that of the shahukars who naturally charge a high rate of interest. In order to avoid all these industrial banks will be the best remedy.

7. With regard to these loans the following paragraph on German industrial banks from the report of the American Monetary Commission, 1907, is most interesting :—

> "The placing of capital in industrial investments proceeds as a rule as following :—The bank extends a certain amount of credit to the industrial corporation, which is used by the latter successively in proportion as its enterprise develops. Such 'investment' credit, owing to its very nature and purpose, cannot be refunded within a short time. It is granted from the start with a view to being converted into capital or the industrial corporation (through the increase of capital stock) or into long-term amortization credit (through bond issues). In order to repay its debt to the bank the industrial corporation issues new stock or bonds. The bank must for the time being take over the additional new securities by changing the 'book credit' into 'issue credit.' This, however, enables it to shift the risk assumed by the granting of the original credit to the wider spheres of the investing public, and to recover, above all, the invested capital. Only in this manner can the bank retain its power of action, and must be admitted that as a general rule the German banks operated in this regard with great skill and circumspection, so that they were able both to meet their own obligations and to satisfy the demands for short-term working credit."

8. As to taking deposits from the public I would not allow these banks to have the current account system. They must be allowed to take only long-term deposits from the public in order to avoid the danger of any sudden panic. The industrial bank will by its very nature have much of its capital locked up in industrial enterprises and to expect it to meet the sudden rush of the public in times of panic as would happen if they had the power to have the current account system, would not be wise.

9. The question whether banks should co-operate more actively with industries than they have been doing in the past is being discussed in Great Britain too with much force, specially during these war times when it is fully realized how German industrial banks helped forward German industries. The chief argument urged against banks concerning themselves more with helping industries is that their capital will be locked up in immovable properties, etc., which is directly opposed to the British doctrine that the capital of a bank should be as liquid as possible. We were afforded a practical instance of the disastrous effects of the neglect of this rule in the failure of a large Indian bank the capital of which was advanced to industries to a large extent and could not be called up when the public rushed to get their funds back in those times of panic. The best thing to my mind to avoid this difficulty would be to start purely industrial banks the sole mission of which would be to help industries.

*A further Note on Industrial Banks submitted to the Indigenous Industries Committee.*

With regard to the Question No. 39 *re* banking facilities for marketing indigenous products, I think the Indian producers both industrial and agricultural have sufficient facilities in big markets. What is really wanted is to give facility to petty producers in small places. And this can be achieved by opening by the Presidency Banks their branches more freely than hitherto as is done in France and other places where accommodation to petty traders is being largely given. Unless this is done, I do not think the object in view of helping indigenous producers will be fulfilled. The present system of Presidency Banks' working is sufficient to accommodate large traders in presidency towns and large cities where they have their branches. By opening of the branches, by the Presidency Banks in small places and by encouraging loans of smaller amounts to petty traders and producers of indigenous articles the object in view will be fully achieved as thereby the middleman who reaps the advantage by pocketing the profit will be avoided and the profit will go to the right party. For instance, a petty cultivator or a petty producer or trader requiring a small loan has to go to a shroff for it, who refuses to give the loan and offers to buy up his goods, and the person being hard pressed and in urgent need of money yields to his pressure, sells him his goods at the lowest prices practically without any profit for himself. But if as I said above, branches of the Presidency Banks are freely opened and small loans to petty traders and producers are freely given the middleman (shroff) is avoided and the petty trader or the producer will be able to take advantage of the market with profit to himself.

How banks in England and foreign countries have got numerous branches scattered all over the country will be seen from the following few instances of such banks :—

| | Branches. |
|---|---|
| Bank of Scotland | 163 |
| Capital and Counties Bank | 350 |
| Commercial Bank of Scotland | 170 |
| Lloyds Bank | 250 |
| London and Provincial Bank | 200 |
| London City and Midland Bank | 400 |

| | Branches. |
|---|---|
| National Provincial Bank of England .. .. .. .. | 180 |
| Bank of France .. .. .. .. | 250 |
| Imperial Bank of Germany .. .. .. | 300 |
| Merchants' Bank of Canada .. .. .. | 137 |
| Union Bank of Canada .. .. .. .. | 160 |

There are 34 banks in Canada with 700 branches. How few the banking facilities are in India compared with all other countries will be still more strikingly seen by the fact that while India with such a vast population is served by three Presidency Banks with about 56 branches besides the Exchange Banks and 17 Joint Stock Banks, Japan has got in all more than 2,000 banks.

### ORAL EVIDENCE, 13TH NOVEMBER 1917.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* In your answer to the 1st question, you say, " These difficulties can be removed if Government guarantee dividends for a limited period to important new industrial enterprises." Do you think that Government should guarantee dividends to an industry as separate from the help received from an industrial bank?—*A.* It must be a separate thing. People should have the facilities of industrial banks, and also in case of new industries where there is expert advice and it is feasible to start a new industry, until that industry has properly developed there must be some amount of risk and to guard against that I suggest — .

*Q.* What I want to know is whether Government should guarantee dividends or should that be the function of an industrial bank?—*A.* The function of the industrial bank is quite a different thing. Its function is not to go and help any industry, but it is an organisation to which people can go and get themselves accommodated, and it profits the banking institution and the organiser.

*Q.* You say in answer to Question 2 (*a*), " Capital may be raised to some extent from the mofussil also if it is properly tapped by well-known people." In what way can this be done?—*A.* That is by people like Tatas. I hear that the Tatas have succeeded in starting an industrial bank with a very large capital. If an attempt had been made by some unknown people up-country, the same capital would not be forthcoming.

*Q.* I am asking you about the mofussil. You say, " Capital may be raised to some extent from the *mofussil* also if it is properly tapped, by well-known people." How could the mofussil capital be tapped? How could it be brought into industries?—*A.* By the well-known people of the place or the district.

*Q.* In answer to Question No. 13 you say, " There should be no Government aid to any industrial concern if there are already some concerns carrying on the same industrial pursuits successfully." But suppose that in one part of the country one industry flourishes while in some other part nothing is known about that industry, don't you think that the Government should encourage that industry in the place where it is not known at all?—*A.* I think all facilities and probabilities ought to be freely published in the place where there is a likelihood of establishing the industry which is flourishing in some other place. If it is only the ignorance of the people, every publicity must be given broadcast about the feasibility and the possibilities of starting the enterprise in that part of the country.

*Q.* In answer to Question No. 24 you say, " There is no need for having an advisory council for research here, but there should be provision for research work in colleges and other institutions." What do you mean by " other institutions " ?—*A.* Colleges and other Government institutions which would be carrying on the business of research and investigations.

*Q.* Should there be a research institution in each Presidency?—*A.* There are the science colleges. But there is also another institution at Bangalore—the Research Institute.

*Q.* Don't you think that the Research Institute at Bangalore is very far from this place? In every Presidency centre there ought to be a research institute if the money is forthcoming or if the Government could spend the money?—*A.* Certainly, if money can be found nothing could be better.

*Q.* The Swadeshi Co-operative Stores is a very paying concern?—*A.* Yes.

*Q.* You are the Chairman?—*A.* Yes. We earned Rs. 88,000 on a capital of Rs. 2,04,000 during the last official year.

*Q.* Do you buy all your stores or do you sell them on commission?—*A.* We buy stores. Almost all articles we buy, excepting those articles which are not known to us. These are kept at the risk of the maker and we push them.

*Q*. Are you in favour of Government starting museums in big centres where samples of goods can be kept along with the names and addresses of manufacturers and a list of the prices charged? Don't you think this is desirable?—*A*. If it is properly maintained and well organised.

*Q*. And the prices should also be marked on the goods?—*A*. If the fluctuations of the market are followed properly, then they will be of use.

*Q*. Do you think that this will be practicable?—*A*. With a very big staff.

*Q*. The manufacturers can send their rates down every day?—*A*. I do not think that a private person would care so much and devote his attention to furnishing all this information to the museum where he is not much interested excepting his show.

*Q*. Do you think that if such co-operative stores are started in other parts of the country they would be useful?—*A*. We have two at Poona and three branches here in Bombay. Our capital being not sufficient to meet applications from different places to start stores, we have got powers recently to increase our capital and we propose that any place that applies to us for a branch should be asked to purchase the requisite amount of our shares equal to the stocks that we shall have to keep in that branch and then we would undertake to start a branch in that place.

*Q*. And do you think that if Government start museums here it will benefit the industries generally?—*A*. To some extent.

*Q*. As regards exhibitions at the Maga Mela at Allahabad and other places do you not think that the cost on such exhibitions will be very exorbitant? They had, as you know, a big exhibition at the time of the Congress in 1910. Do you know that the cost of it was very great; whereas that money might have been utilised on permanent things?—*A*. If there are side shows then the exhibition would be a self-supporting institution, but if it is simply for the sake of exhibiting, then there must be a certain cost.

*Q*. At the time of the Congress in Bombay, there was also an exhibition?—*A*. I was the President of the Exhibition.

*Q*. Was it a financial success?—*A*. Certainly.

*Q*. How much did you make?—*A*. There was a surplus balance which was handed over to the Congress Committee.

*Q*. That, I think, can pay only in big cities like Bombay or Calcutta?—*A*. All these melas are held at big places and a large number of people attend these melas.

*Q*. In answer to Question 44 (*a*) you say, "The lack of primary education does hinder industrial development." Do you think that primary education ought to be made compulsory?—*A*. Yes.

*Q*. Will that improve the skill of the labourer?—*A*. Yes.

*Q*. You say, "Very little is done in the textile industry to improve the efficiency and skill of the labourers." What remedy do you suggest?—*A*. I suggest that better housing facilities ought to be given to these workmen, and I advocate shorter hours of work.

*Q*. With reference to your answer to Question No. 45 will you just tell us the difficulties of housing experienced by millowners and the scheme you wish to adopt?—*A*. I have got a copy of it. (The witness hands it over.)

*Q*. Do you think that if the hours are reduced the labourers will be willing to take advantage of the shorter hours?—*A*. Why is it that our compounds are full of workmen when work is actually going on inside the mill?

*Q*. For how many hours on the average is the work done?—*A*. Under present conditions they do not work for more than eight hours if not less.

*Q*. And if the hours are reduced to ten do you think that they will be working the same eight hours?—*A*. They will give more time to work rather than enjoy some hours in the compound.

*Q*. We have raised the wages by ten per cent. in Bombay?—*A*. Lately.

*Q*. What has been its effect on the mill-hands?—*A*. They first raised them in August and it will take some time for a close observer to know the effect of this increase.

*Q*. What effect has it had on the production? Another representative of the Millowners' Association yesterday told us that the effect had not been good and that the production had gone down instead of going up.—*A*. Is there any connection between the rate of wages and the amount of production?

*Q*. Rather than get more money, they prefer to work less and get the same amount of money as they did before the increase?—*A*. I cannot subscribe to that.

*Q*. Is it not your experience that the production has gone down?—*A*. Not in my case. I am a keen observer of production.

Q. So is everybody. What about attendance?—A. The attendance is the same.

Q. You are managing three mills?—A. Yes.

Q. In your answer to Questions 59 and 60 you say," The Director of Industries should preferably be a businessman." Do you think that a very good competent businessman will be willing to take up this position?—A. If the position is made worth his while to take it up.

Q. What do you think the salary ought to be?—A. I should say not less than at least Rs. 4,000 to 5,000 a month.

Q. You say in answer to Question 71 (a). " There should be a central technological nstitute for the whole of India." Are you in favour of one principal institute with he other institutions working under it?—A. One institution with a very good laboratory.

Q. If there is one in Bombay, you think that ought to be central and Calcutta ought not to have one like that?—A. Wherever it is suitable. I do not localise it anywhere. It is a question of convenience, where it could be conveniently located.

Q. But you do not want different institutions? You want one central institute?—A. Yes.

Q. Do you think that the *Indian Trade Journal* is doing good and is useful to the people?—A. Yes.

Q. In answer to Question No. 96 you say, " I am against the system of registration of partnerships." Why?—A. Because the Hindu law has a great deal to do with it. We have made a separate representation on this subject about 8 or 10 years ago; I mean the Piece-goods Merchants' Association.

Q. Will you say what the difficulties are?—A. In a Hindu family a new born child becomes a member of the joint Hindu family, and he becomes a partner of the family. If a partnership is to be registered, or if a partnership has to be cancelled at the birth of every child and at the death of every child it is a very difficult question and it will create a lot of disputes. And the joint Hindu family system will not very easily die out. That is one of the difficulties and a very great difficulty, too.

Q. We come to an important question, the establishment of an industrial bank. We want to know your views, because wherever we have been we were told that the reason of the failure to start new industries is the want of finance, and so far we have had no clear proposals about these banks. We have got your scheme. Do you think that a fifty lakhs bank will suffice for a country like India?—A. I do not say that only one should be started, but that one should be started with that capital as a model, and when people see it working successfully then there would be so many coming forward because the prospects of these banks are, to my mind, more enormous than ordinary banking institutions.

Q. Would you authorise these banks to take only long-term deposits?—A. They must not be authorised to take only short-term deposits, otherwise in times of crisis, God knows what would happen.

Q. By long term, do you mean one, two or three years' deposit?—A. I say that it may be three years or five years.

Q. Will the bank be able to get deposits at a lower rate for three or four years?—A. If the bank is conducted on sound principles, I should say they can get money at a fair rate of interest.

Q. For a longer period than one year?—A. There are many who will deposit.

Q. Do you know anything about the industrial banks and the hypothec banks of Japan, and how they are helped by the Government on the financial side?—A. No.

Q. In Japan, one-third of the capital of the Yokohama Specie Bank was subscribed by the Japanese Government to commence industrial work in Japan.—A. It all depends upon the mood of Government.

Q. You do not think that it is feasible for Government to subscribe to the capital of the bank?—A. I should not recommend Government to subscribe to the capital, but I would recommend that the surplus funds should to some extent be deposited with this class of banks.

Q. On what system should loans be made to the people?—A. On the security of the concern and in some cases if the experts find it — .

Q. Who should have these experts?—A. The bank ought to have connection with experts.

Q. Not in their service?—A. They should have connection with the experts and pay a certain fee for each opinion that they give. They must retain these people on a certain fee and on each question that is sent to them for their opinion they should be paid separately, so that they would not be a burden to the bank, and the bank could command the services of these experts whenever they want them.

*Q.* Will this industrial bank be able to start new industries?—*A.* No. I do not say that this bank should start them, but the bank should finance those people who intend starting industries, whenever it is satisfied.

*Q.* Satisfied how?—*A.* Satisfied about the possibilities of that industry.

*Q.* But supposing the bank wishes to advance to any new concern, they will, first of all, have to take the advice of an expert, but there is no expert to be found here, so they will have to engage the services of men from elsewhere.—*A.* It all depends upon the sort of advice that the bank wants. Perhaps they may refer the whole case to an expert outside India.

*Q.* Who does not know the conditions of India?—*A.* In that case they will have local experts.

*Q.* Are there any local experts who can give advice about the starting of new industries?—*A.* They will have to make some arrangement, and they cannot go and engage the services of all sorts of experts.

*Q.* You know that private people who have started new concerns have brought out experts and paid them exorbitant fees?—*A.* Yes. If the enterprise is of the nature of the undertaking of Tatas, they can afford to spend five lakhs or ten lakhs on expert advice and experiment, but people engaging in small industries cannot afford to do that. There is a distinction between a big industry and a small industry.

*Q.* Either the bank or the Government should have experts? Which do you prefer?—*A.* The Government should have some experts, and as for the bank it will manage its own affairs in the best way it can.

*Q.* And they should give money on the liquid assets as well as on buildings and machinery?—*A.* They should advance monies, and after some time they may underwrite these concerns to some extent and convert their underwriting into debentures and make the advances into a liquid form again. Otherwise they cannot go and finance every concern.

*Q.* Could a bank with fifty lakhs capital underwrite concerns too?—*A.* Certainly. In advanced countries they want to do it. When there is a new enterprise with a very good prospect, then they can underwrite and make a profit out of it.

*Q.* After taking expert advice?—*A.* Yes.

*Q.* Do you want the industrial bank to issue its own debentures. *A.* If the bank starts on its own debentures, then I should say that they should give up the idea of starting a bank. They must have their own capital *plus* borrowed capital and they must start business on that principle.

*Q.* They ought not to have debentures?—*A.* Certainly not.

*Q.* In the last paragraph of your first note on industrial banks you say, "We were afforded a practical instance of the disastrous effects of the neglect of this rule in the failure of a large Indian bank the capital of which was advanced to industries, etc." You mean the Punjab Bank?—*A.* Yes.

*Q.* In your second note you say, "What is really wanted is to give facilities to petty producers in small places and this can be achieved by opening by the Presidency Banks their branches more freely than hitherto as is done in France and other places where accommodation to petty traders is being largely given." Do you want the Presidency Banks to take up the work of the industrial banks?—*A.* Not the industrial banks. That is to accommodate commerce. The Presidency Banks are giving facilities to big merchants and big industrial concerns.

*Q.* Are they not financing the crops of the country?—*A.* When they are brought to big markets or big producing centres where they have got their own branches.

*Q.* So you want them to open other branches and to finance the small trader, even if it is not paying?—*A.* I do not understand why a branch of the bank should not be paying. They make advances at a rate of interest or return which would pay them.

*Q.* You want the Presidency Banks to have branches in smaller towns and give money to the petty trader. Can you give the minimum amount they should give out to an individual?—*A.* Say, Rs. 5,000 if not less.

*Q.* You prefer still less?—*A.* Certainly. The more the facilities by way of branches the more the trade, because as it is now the small producer or merchant has to go to the sowcar and sell his goods. He cannot do without that facility.

*Q.* And you want to get rid of the middleman, the shroff?—*A.* I do not say that I want to get rid of him, but I say that if there are other banking facilities the shroffs will reduce their rates.

*Q.* Except the Presidency Banks, have the other banks taken up this work, I mean, the joint stock companies, the Bank of India, etc.?—*A.* We have very few banks as it is in the Presidency Towns and they are opening branches now but only in big centres.

*Q.* And you think that they ought to start branches just like the other banks which you have mentioned, the Bank of Scotland, etc.?—*A.* I say that trade ought to be helped by the banking concerns more freely.

*President.*—*Q.* I do not know what you mean. Do you think that they are missing opportunities, or do you wish to suggest that they should be forced to open branches?—*A.* Joint stock concerns cannot be forced.

*Q.* You mean that by not having branches the banks are missing really good opportunities for profitable trade?—*A.* My suggestion is that, as Government has something to do with the Presidency Banks, they can have branches started and set an example to other concerns how that can be worked.

*Mr. C. E. Low.*—*Q.* I want to ask you a question about the Swadeshi Stores. What class of people do you buy from? Do you buy from artisans up-country in any case?—*A.* Very largely.

*Q.* You buy, for instance, from cottage weavers?—*A.* Yes.

*Q.* How do you manage to get into touch with these people?—*A.* Our men are going round and as soon as we find that an article is produced we try to trace the producer.

*Q.* And you buy in the village bazaars or fairs, or do you buy from house to house?—*A.* We buy from manufacturers in many cases and in some cases from merchants also, that is, middlemen. But we are reducing buying from middlemen as much as we can.

*Q.* Do you ever find these weavers asking you to finance them and to give them advances, and do you find any difficulty in getting the goods that you want when you do not give advances?—*A.* We have no direct evidence of that, because the distance from this place is one of the causes, but we find considerable difficulty in getting things ordered on account of their financial difficulties at times.

*Q.* They are very sticky about producing the articles. They say that they will bring and they do not bring?—*A.* Yes.

*Q.* With reference to this banking question, you speak about the Government balances being placed with the Presidency Banks. When you have a concern which has out a large portion of its capital in long-term loans, how will it manage to hold and repay on demand Government balances which are held at very short notice?—*A.* I do not say that they should be invested very largely in that, but I say that whenever funds permit they must set aside a portion which they are bound to maintain always and that portion can be given to the industrial banks.

*Q.* But the reason why the Government have a certain irreducible minimum is presumably to meet possible urgent demands.—*A.* Quite right.

*Q.* But supposing that money is employed by the industrial bank in financing an industry, that money is not readily forthcoming.

*A.* But if the Government wished to start new industries and launched their own capital to start those industries, would not their own capital be locked up there?

*Q.* It is quite true, but what I say is this, that the kind of money which Government keep in their balances—they keep it to meet certain needs. If you are contemplating having Government money placed at the disposal of a bank of that sort, it has to be a different kind of Government money. It has to be Government money which Government contemplates being locked up for a more prolonged period.—*A.* Yes. Similarly they can make advances on long periods from a certain portion of their surpluses.

*Q.* It could not be done with the same class of money and on the same sort of terms that Government keep in Presidency Banks?—*A.* Certainly not.

*Q.* And the amount of Government balances with the Presidency Banks fluctuates a great deal as you are aware?—*A.* Yes.

*Q.* They get to a minimum at certain stages of the year.—*A.* Sometimes it goes to a crore or less.

*Q.* How would you deal with the small up-country industrialist through such a bank? Through what agency?—*A.* Through their branches.

*Q.* Do you think that the bank would be able to hunt out the small fellow who wants a Rs. 5,000 proposition financed?—*A.* If they have branches in those areas then it is as easy to finance a big concern as a small one. What prevents the bank from financing a Rs. 5,000 customer or a five lakhs customer?

*Q*. The five lakhs customer is in one place, but if you get 100 small fellows aggregating five lakhs spread over a district, you have got to get some information about their financial position and character and that is rather a big strain on the resources of an ordinary bank. Is it not?—*A*. How are these small people who intend starting industries to be financed? They must be left to the mercies of sowcars.

*Q*. There is that difficulty. But supposing they had a Government organisation for enquiring into the status of these people as in the case of grant of takavi loans?—*A* There must be an organisation to get the necessary information, and that organisation must be maintained by the branch of the bank.

*Q*. In several places we have heard complaints that in dealing with applications for financial assistance the Presidency Banks were apt to favour European firms at the expense of Indian firms.—*A*. That is not Bombay experience.

*Q*. You have Indian directors in Bombay?—*A*. Yes, appointed by the shareholders.

*Q*. For how long have you had Indian directors?—*A*. Since a very long time. May I say something more on this point? I know that in Madras they clamour for Indian directors to be appointed by Government. These Presidency Banks are governed by joint stock companies. Of course, they are worked under an Act, but their management is entirely by independent joint stock concerns, and it is the shareholders and not the Government who can appoint the directors.

*Q*. May I put to you a further question? Have you any idea whether, as a matter of fact, in Bombay all the Indian shareholders vote for Indian directors and all the European shareholders for European directors?—*A*. They like their own people. If a European candidate comes and if the Indians think that he is a good man, they vote for him. If an Indian stands and the Europeans think that he is a good person, they give him their votes.

*Sir F H. Stewart* —*Q* With reference to your banking proposals, what personal connection and experience have you had in banking?—*A*. I was connected with one banking concern, the concern called the Merchants' Bank. I was the Chairman of that Bank. The people very much supported that institution at the beginning. But after working for a time, I had some idea of my own—I cannot say whether I was right or wrong—and I had to sever my connection with it, not being satisfied with the management.

*Q*. You look forward to a great extension of banking in India?—*A*. Yes.

*Q*. For both industrial purposes and trade purposes?—*A*. Yes.

*Q*. Have you any ideas whether it would be very difficult to recruit the staff?—*A*. That is my great difficulty, and I have, therefore, made a suggestion in more than one place, that the Government ought to see that the Presidency Banks take apprentices and give them a thorough training after they have undergone special banking training at a commercial college.

*Q*. Then you would agree that banking training must be practical? You can't learn it from books?—*A*. No.

*Q*. Is there a good proportion of Indians who go in for banking now?—*A*. If there are facilities. A young person after finishing his college career cannot expect to go and get himself employed as an assistant in any bank, but if he has some sort of training in a Presidency Bank from beginning to end, then there would be a great demand for such people, and in fact there is now a demand for such people.

*Q*. Those who are already engaged in the banking institutions—do you consider that most of them are well qualified?—*A*. There are very few who are well qualified. Otherwise we would have been saved the result of all this inexperienced working.

*Q*. You would welcome the introduction of some such examination as the Bankers' Institute conduct at home?—*A*. Yes.

*Q*. You have told us your reason for opposing the registration of partnerships. As a practical businessman don't you find that you suffer from the absence of registration? You find difficulty in some cases to know with whom you are doing business and who the responsible man on the other side is?—*A*. Our experience is not so very great on this point.

*Q*. Many cases have come up before courts for want of registration of partnerships and people had to suffer. In your own opinion you are willing to suffer rather than face the difficulty which you mention?—*A*. There is a cry raised about registration, but to convince people, sufficient data have not been obtained as to what are the sufferings on account of non-registration of partnerships.

*Q.* Do you think that it would be worth while for Government to make further enquiries in the matter?—*A.* They may make further enquiries and let people know the exact extent of the hardship.

*Q.* You would agree that if some means of registration was devised acceptable to the Hindu community, it would help to promote business relations?—*A.* It is a preferable idea. But in practice every business transaction is conducted on the clear understanding of the position of the parties. Without one knowing the other with whom he is dealing, one cannot enter into any business connection.

*Q.* Then you are limiting business possibilities?—*A.* I do not say that that means limiting it. If you have in the register the names of all the partners that would not help you to increase your business.

*Q.* If you had a system of registration you would agree that it might help to keep out undesirable aliens, and prevent them from coming into the country and trading under names by which they cannot be traced? Would that not be an advantage?—*A.* That is quite a different idea from the one that is being urged now. Separate means ought to be taken for the registration of aliens.

*Q.* You refer to the Bombay Indigenous Industries Committee? How is that composed of? You say that there is a civilian secretary. Who are the members of this Committee?—*A.* I think that there are nine members.

*Q.* They are only advisory?—*A.* Yes.

*Q.* But you would like to see a local Industries Committee or Board with executive powers?—*A.* So far as the spending part of it is concerned. Now, as it is we have to simply advise those people who come and seek our advice. Also we devote a certain portion of our time to finding out the possibilities of new industries.

*Q.* But if you give this Committee executive powers, don't you think that that might clash with the regular work of the Director of Industries? If you give them executive powers you would make the Director of Industries really a servant of the Board.—*A.* Of course, it has to be like that, but if the Government think, they can appoint their own Chairman. Instead of the Director being Secretary, if he is Chairman of the Committee, then he would have a great voice.

*Q.* If you give the Committee increased powers you expect from them increased work?—*A.* Yes.

*Q.* Do you think that you will get businessmen of position to serve on such a Board? Will they be able to spare time?—*A.* If they undertake to do it, they should give up their own business. They have to devote their time to it; otherwise they would be of no use.

*Q.* In that case, I suppose you would pay the members of this Committee?—*A.* Yes.

*Mr. A. Chatterton.*—*Q.* Regarding the Swadeshi Stores, are you taking steps to do anything more than collect articles that have already been manufactured in the country?—*A.* I shall give you a concrete instance. In the beginning when we started the Stores there was a man who began to make brass candle-sticks. He could make only four or five candle-sticks in a week and he wanted to sell them at Rs. 4 each. When we went to him, he said that he could not sell them for less than Rs. 4. Then I told him that the brass contained in that candle-stick was not worth one rupee and he said that he wanted to sell them at that rate because he had to maintain himself on the sale of these candle-sticks. I offered to buy 2,000 candle-sticks from him within a period of three or four months and asked him whether he could reduce the rate. The idea appealed to him and he reduced the rate to Rs. 3 provided we guaranteed to sell at Rs. 4 because he was afraid that if we did not buy from him in future his price would go down, and later on he reduced that price considerably and now his candle-sticks are sold at Rs. 1-2-0 against foreign competition. We lent that man Rs. 200 without interest. He imported some labourers from up-country and worked with a small lathe or driving machine, and now he is able to manufacture several brass and iron things, and he pays Rs. 300 a month as rent for his show rooms and this is the result of our lending him Rs. 200 at the beginning.

*Q.* Do you deal very largely with up-country made woven goods?—*A.* All sorts of country made woven goods.

*Q.* Have you any groups of weavers in villages working directly for the Stores?—*A.* No. We make purchases from persons who are weavers, or we buy.

*Q.* From the sowcars who have financed the weavers?—*A.* They may be sowcars or middlemen. Perhaps most of them are sowcars.

*Q*. Have you regular lines of goods such as dhoties or *angavastrams*?—*A*. Largely from Madura.

*Q*. You have a regular trade in these?—*A*. A very large trade.

*Q*. When you have an established line of business like that, do you keep any organisation trying to improve the methods that are employed by the weavers for manufacturing these things?—*A*. No. We have not gone to that length. We, of course, make suggestions to improve their qualities to suit the customers.

*Q*. But you do not go into the question of manufacture?—*A*. No.

*Q*. Do you contemplate doing it in the future as the business develops?—*A*. We have not yet paid any attention or thought it out to that point.

*Q*. With reference to the industrial bank of which you have outlined a scheme, have you formulated any definite idea as to how you are to deal with the small advances which you propose should be given to small industrialists scattered all over the country? Do you propose to have a large number of district branches?—*A*. Yes.

*Q*. And to have technically qualified men in each branch?—*A*. Not technically qualified men in each branch, but the manager of the branch must have some superficial knowledge, and he must refer all the applications to the head office and the head office may deal with them after due enquiry, and the local manager would carry out the suggestions.

*Q*. The head office will have to maintain a large staff of inspectors?—*A*. Not regular inspectors, but, of course, they have got to cope with the work and they must have a staff to cope with the work.

*Q*. You are also in favour of the establishment of a Department of Industries, and I presume that you would want the Department of Industries to maintain a somewhat similar staff?—*A*. The Department of Industries is another thing altogether, and the industrial banking concern is quite different from it. They have two different objects.

*Q*. Are you going to work in conjunction with the Department of Industries, or are you going to work independently of it?—*A* I think, independently, because the Department of Industries of Government should advise the people.

*Q*. Let me put the case this way. A man wants to borrow Rs. 5,000 for the purchase of certain machinery and plant. In certain parts of India, he could go to the Director of Industries and he could take a loan, and the system is developing and the loans have accumulated to a large amount. On the other hand it would be quite practicable that an industrial bank should make the loan rather than the Government, but that would necessitate the industrial bank maintaining a large staff of more or less competent experts. Would it be possible for the industrial bank to get assistance from the Government? Government could maintain a competent staff to investigate schemes and submit reports to the bank and the bank would deal with the applications for loans. Do you approve of it?—*A*. If both these concerns can co-operate and systematically work together it is desirable.

*Q*. If there is some agreement with the industrial bank, it should be possible?—*A*. Yes. But supposing that Government advise that a certain concern should be financed to a certain extent and the bank people think otherwise, then there will be a conflict.

*Q*. The man would not get the loan.—*A*. Then the Government will not press their opinions after repeated refusals from the bank. If there is a recommendation from the Government department that a loan of Rs. 5,000 should be given to a certain party for purchasing plant, and if the authorities of the bank differ from that view, what will happen? The Government after so many refusals from the bank will say, you do not follow our advice, and we shall have no connection with you. That will be the possible result.

*Q*. If the bank were continuously to refuse to accept the advice tendered by Government, it would show either that the bank did not want to carry out its industrial policy, or that the Government inspectors did not enjoy the confidence of the bank.—*A*. There is likely to be friction. If they could work harmoniously, there is no fear.

*Q*. I am asking you this question because it has been suggested to us that we should adopt some such system as that in Southern India, where the Department of Industries not only examines these applications, but in approved cases also finds the money. It has also been suggested as an alternative that the Government might give some kind of guarantee for a certain period to loans made by a bank. Do you approve of that?—*A*. Yes.

*Q.* Would that be better than asking the Government to deposit a fixed amount in the bank such as you have suggested here, 25 lakhs of rupees?—*A*. There are several ways in which Government can help and they have to decide which is suitable:

*Q.* Without Government assistance do you think you will be able to get a sufficiently strong board of technical advisers?—*A*. Government assistance will be a sort of confidence in the bank itself, and it will help to find capital for the institution. My suggestion is that one institution is not going to suffice; there should be a number of such institutions.

*Q.* According to the requirements of each locality?—*A*. Quite so, and they will deal with all the small industrial concerns.

*Q.* If Government maintains a certain number of industrial experts, they will be available to advise not one bank but half a dozen banks. Each bank possibly operating in separate territory?—*A*. You might have a central industrial bank and a small one in each province to deal with these small industrial concerns. I am not talking of big undertakings, but in these small concerns and especially when they are situated up-country there must be some sort of connection between Government and the concerns, so that it will ensure confidence in the people and the capital may be forthcoming.

*Q.* Have any steps been taken to float industrial banks of the character you are talking of now?—*A*. Supposing you start an industrial bank in Bombay, the capital might be raised in Bombay city; but the minor industries might be scattered all over the Bombay Presidency, and these small industrial concerns could only finance themselves by borrowing the money they require from this industrial bank. But now the question is how to influence the mofussil investors. In Bombay we are largely accustomed to investing money.

*Q.* Well, if these small industrial concerns get assistance from Government in the form of the services of technical experts, will not that form of support be sufficient?—*A*. Yes, if it is in presidency places or big places, but if the concern is going to be in a place like Ahmedabad, there a small bank is not needed; there a large bank is needed. But when those banks multiply according to the requirements of several small places then this sort of scheme won't create confidence. That is my objection.

*Q.* But if the banks begin to multiply, there will be necessity to use special means to create confidence?—*A*. I do not agree. The people have lost so much that it will take a very long time to create that confidence; it cannot be created all at once or within a very short time, unless there is a proper safeguard, and that safeguard cannot be had unless there is that Government connection and Government supervision, direct or indirect supervision.

*Hon'ble Sir R. N. Mookerjee.*—*Q.* Have you experienced any difficulty in transport by railway or by river?—*A*. Yes. There are two questions in this connection. One is the inland sea coast trade. The low rates of the railways have killed the coastal trade. Another difficulty is that the industries have suffered on account of the block rates over the railways for imported goods.

*Q.* How have they suffered?—*A*. I will give you an example. Supposing a match merchant imports matches from Sweden or Japan. From Bombay to Delhi, or from Bombay to Ahmedabad, or from Bombay to Nagpur, he will get a favourable rate, that is, the sea-port rate; but supposing an indigenous match industry is started at Thana, only 24 miles from Bombay, he has got to pay for the export of his manufactured articles, from Thana to Delhi a very exorbitant rate, so that the industry started at Thana cannot compete with the imported article.

*Q.* Can you give an instance like that in the case of coal, for example?—*A*. The Indian Merchants' Chamber have gone into the question and we have some data collected. It is difficult to say off-hand: I would supply these figures later on.

*Q.* Would you write to the Secretary of the Commission?—*A*. I will write to the Secretary.*

*Q.* Besides that, have you had any experience of the difficulty for the shortage of wagons or anything similar on the railway transport?—*A*. Yes; whenever there is a particular season for a particular class of goods. For example, in the wheat season a shortage of wagons is felt by the cotton merchants. Cotton merchants cannot get wagons invariably in the cotton season. We suffer a great deal. I can mention last year's experience when the rate for cotton in cotton-producing district was considerably lower than the rate which prevailed in Bombay on account of shortage of wagons. The producers themselves could not hold their stock; they had to sell through the cotton traders, merchants and sowcars who can hold the cotton till they get wagons.

---

* *Vide* Appendix printed after the witness' oral evidence.

*Q.* In regard to the question of shortage of coal, you can obtain and keep large stocks of coal in the slack season?—*A.* We could not get these stocks. Of course, it was suggested that the mills could stock their coal, but with all our efforts we could not get coal: although we had a contract, a 12 months' contract, for a regular supply for each month and we made every effort to buy large stocks in the slack season, we could not get wagons even in the slack season.

(*To the President*) I am speaking of last year.

*Q.* I don't mean last year, that is war time; in war time we all have to give priority to war requirements. But before the war what was your experience?—*A.* The coal question never arose before the war, because it was largely brought here by the sea route.

*Q.* We have received complaint of another difficulty, namely, a cheaper rate is charged over railways for longer distances for the same commodity than if it was brought over a shorter distance. Have you any experience of that?—*A.* That is on account of block rates on certain lines.

*Mr. C. E. Low.*—*Q.* You want to amend the Land Acquisition Act? Suppose a man wants to start a jute mill or a cotton mill or any other class of factory, and suppose a large area is required, and people holding small plots will not give them up at once, do you think that Government ought to enact a law by which such land can be acquired for a public purpose?—*A.* Yes, that is my point.

*Q.* Do you think the erection of a factory is a public purpose?—*A.* Wherever it is difficult to get lands.

*Q.* For factories or for enterprises like sugar plantations, sugar mills and the like?—*A.* Of course, for sugar plantations land is quite essential, but even in the case of small factories also there must be provision made so that the Local Government may be able to find out land.

*Q.* If there is any difficulty?—*A.* Yes, if private effort fails.

*Q.* Supposing a man wants to start a factory in Bombay, would you suggest that the land should be acquired for him?—*A.* Not for any person or every person, but supposing the factory is to be started somewhere up-country, there if the local authorities are satisfied that there might be certain difficulties in procuring land in a suitable place, then Government must help or should be armed with some authority to make provision to meet such cases.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* In your answer to Question 41 you say that "facilities should be provided for taking up land for industrial purposes by making an alteration in the present law if necessary." What industries do you refer to?—*A.* My idea is this: Whenever any industry is to be started, Government should give facilities for the acquisition of the necessary land for the erection of factories. At present these questions have got to go to the Government of India: the local authorities cannot grant it, that is the difficulty.

*Q.* Suppose that at some centre there is a plot of land near a railway siding, and the owner is not willing to sell it, but the owner of another plot some 200 or 300 yards behind it is willing to sell his plot, do you think that the first plot should be acquired under the acquisition proceedings?—*A.* If it is necessary for the efficient conduct of that industry or factory, then it must be acquired. There may be a case where the owner may think that he will fetch a higher price or that his land has acquired certain special rights. In such cases such special rights will be taken into consideration in assessing the value. But here is a man who for the sake of refusing will refuse and won't part with his land. In that case there must be some authority in the hands of Local Governments to acquire that land.

*Q.* For industrial purposes?—*A.* Yes.

*Q.* Do you think that for sugar plantations it is essential that land should be acquired?—*A.* Yes.

*Sir D. J. Tata.*—*Q.* With reference to the acquisition of land, don't you think that they should have fixed rules on the subject so that everybody who wants to acquire land for industrial purposes may know exactly what he is to expect, and proceed accordingly.—*A.* Government may make rules on the question of land for industrial purposes, but they may impose conditions which may not be suitable.

*Q.* Don't you think that it is right that Government should have a fixed policy with regard to the acquisition of land? I am talking about Government lands. It is possible that Government may want to make money out of the industry in some way, and may impose such conditions as to make it rather difficult to acquire such lands. Should there not be a fixed policy with regard to the acquisition of such lands; I mean a declared policy?—*A.* The situation of the land will not be in all cases similar. It all depends upon the situation and the proper value of that land.

# APPENDIX.

Dated 26th February 1918.

From—The Hon'ble Mr. Mummohandas Ramji;

To—The Secretary, Indian Industrial Commission.

During my oral evidence before the Indian Industrial Commission, the Hon'ble Sir R. N. Mookerjee was pleased to enquire as to how, in my opinion, owing to the difference between the railway port rate and the inland rate, the inland industries suffer in competition. The following few instances fully support my assumption and conclusively prove that the railway port rate being lower than the inland rate the industries located inland do suffer:—

The instances are—

| | | Miles. | Rates. | | | Rate in pies per maund per mile. |
|---|---|---|---|---|---|---|
| | | | Rs. | a. | p. | |
| B. B. & C. I. Railway .. | Ahmedabad to Howrah - | 1,378 | 2 | 15 | 3 | ·411 |
| | Bombay to Howrah - | 1,223 | 1 | 7 | 1½ | ·226 |
| G. I. P. Railway ... | Ahmedabad to Howrah - | 1,378 | 2 | 15 | 3 | ·411 |
| | Bombay to Howrah - | 1,223 | 1 | 7 | 1½ | ·226 |
| | Sholapur to Howrah - | 1,323 | 2 | 10 | 7 | ·386 |
| B. B. & C. I. Railway ... | Wadhwan to Bombay - | 388 | 0 | 8 | 10 | ·273 |
| | Ahmedabad to Bombay - | 308 | 0 | 9 | 1 | ·353 |
| | Wadhwan to Ahmedabad - | 80 | 0 | 3 | 4 | ·5 |

The foregoing figures clearly point out that in certain mill districts, with different mileage, the difference of rates conclusively proves that there is an undue advantage in trade competition. These are, no doubt, only a few typical instances, and if the Indian Industrial Commission is pleased to go deeper into larger details of examining the question under reference, it will do so of its own accord, and in the best way it chooses.

---

## WITNESS No. 286.

### MR. J. WELSH, *Manager, Standard Mills, Bombay.*

*Mr J. Welsh.*

### WRITTEN EVIDENCE.

Calico printing.

I have received your invitation of December 22nd 1916, to give evidence before the Indian Industrial Commission, especially on matters regarding the feasibility of introducing calico printing into India.

In accepting your invitation, I beg to say that I will confine myself solely to the practical part of the question.

In the first place, I presume that by calico printing you mean the printing of cloth by machines and copper rollers as is done in England and other European countries.

No doubt the Commission on their tour through India have found that calico printing by hand, either with wooden blocks or pencils, has been carried on as a cottage or village industry from ancient times: in fact India is without doubt the birthplace of calico printing, and the industry is still carried on to a very large extent in Bombay, Farrukhabad, Ahmedabad, Jeypore, Meerut and Karachi. Some very fine and elaborate prints are produced (specimens of which I have in my possession) mostly for Indian consumption by the higher classes, and a fair trade is also done with Europe and America.

Since receiving your invitation I have visited several of the places in Bombay where block printing is carried on, and on enquiry find that there are between three to four thousand men engaged in the industry in Bombay island alone.

Advantage has been taken of the new dyes and chemicals introduced from Europe, and few, if any, of the vegetable dyes are now used, except indigo, which is still used in preference to the synthetic indigo, but, as far as I have seen, the methods used in developing and fixing the colours after printing are very crude, resulting in many defects in the prints produced that could be overcome by expert advice and the outlay of a little capital.

An attempt was made some years ago in Ahmedabad by some Europeans to print cloth by machines and copper rollers, but, as far as I can learn, it failed owing to the lack of a sufficient water supply.

It is needless for me to speak of the immense quantity of prints imported into India from Europe.

This trade in no way effects the hand industry, but to produce the same style of goods here a copious and regular supply of water is the first essential.

I have had a wide experience of calico printing in England, and came out here in 1907 to start a printing plant at the Standard Mill. Our styles of prints have been limited, but what we have produced has compared favourably with imported goods, both in execution and fastness to light and washing.

From my experience, I can say there is no reason whatever why prints similar to those imported cannot be produced here, but to my mind it is purely a matter for the consideration of large capitalists, who would be in a position to secure suitable sites with a good water supply whereon to build their works. As an example of a suitable site, you might take Khapoli, where there is an abundant supply of water flowing from the generating station of the Tata Hydro-Electric Power Supply Company, Limited.

The bulk of the cloth imported is manufactured from fine yarns, which, although it cannot be spun from even the finest Indian cotton, could be made in India by imported American or African cotton, or the yarn itself could be imported, but this is a matter for those interested.

If the Commissioners would like any further information on the subject, I am at their disposal.

ORAL EVIDENCE, 13TH NOVEMBER 1917.

*Mr. A. Chatterton.*—*Q.* In reference to cotton printing you say that in Bombay there are some 4,000 people engaged in the industry. Are the specimens you have brought to show us all of local work? —*A.* Some specimens are of local work and some from other parts. I have mentioned this in my note.

*Q.* What class of goods do they produce?—*A.* Saris and various other classes of goods.

*Q.* Then you say further on that cotton printing could be developed here on a very large scale. Is the class of cloth woven in Bombay suitable for cotton printing?—*A.* Not for the bulk of the goods.

*Q.* Then you say further on that fine yarns cannot be spun from even the finest Indian cotton?—*A.* I do not mean that. I am speaking of the yarn used in cloth actually woven for printing.

*Q.* You have no difficulty on that score?—*A.* No. Many of the weavers are experts, of course you will find indifferent weavers, but taking them as a class, the weavers here in Bombay are very smart.

*Q.* They have been able to produce quite satisfactory printing cloth?—*A.* Yes. I have samples here of cloth woven in Bombay from English imported yarn.

*Q.* Is there much printing done in Bombay at the present time by machinery?—*A.* Very little; there is only one company.

*Sir F. H. Stewart.*—*Q.* Is there still a great demand for printed cloths in India?—*A.* Yes.

*Q.* Is it increasing or decreasing?—*A.* Increasing. Our production is now four times what it was.

*Q.* And you supply the local market mostly?—*A.* We found great difficulty first in getting our goods marketed; there is a prejudice against them because the cloth is rather coarse. The local Swadeshi Stores were our chief customers before the war, and took the bulk of our goods. We have customers now in other parts of India and Bagdad.

*Q.* The different departments of printing work require a good deal of expert knowledge? —*A.* Well, it requires one expert and the staffs are trained by him.

*Q.* Have you many Europeans on your staff?—*A.* We have one European, that is the machine printer who has served his time as an apprentice, but the man who actually works the printing machine is a cooly. He has nothing to do with the colours, that is done by the native Colour Mixer who has been trained by myself.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* Is your calico printing work going on now?—*A.* Yes.

*Q.* Had you had to stop once?—*A.* No, we never stopped; we were rather slack at times. But the demand now is greater than before the war.

*Q.* Is that all war demand?—*A.* I daresay a good deal will continue after the war. Our prints can easily compete with imported goods.

*Q.* You print your own goods? You don't take the finer Lancashire cloth and print it?—*A.* We use the finer Lancashire cloth for printing and we also weave imported yarns into cloth for printing.

*Q.* Which line is the bigger line—the imported goods or your own manufacture?—*A.* Our own manufacture: of course we print much more of that than imported cloth.

*Sir D. J. Tata.—Q.* Now, though your evidence does not touch upon the point, there is one point I should like to put to you as you are a practical man managing mills; and might have some ideas as to the conditions of labour because you have been some time in this country. I want to ask you one question entirely unconnected with the point we have been discussing. One witness before you, in answer to a question, said that very little is done in the textile industry to improve the efficiency of skilled labourers. He was asked what he thought was the solution, and he said "shorter working hours". Now, have you any views on the question of working shorter hours?—*A.* There was an agitation amongst the work-people a few weeks ago for a 10-hour day: they were going in for a 10-hour day, that was the general impression.

*Q.* When mills came from a 13 to a 12-hour working day, the production increased, was that not so?—*A.* It was so. We did get better production for the last three years after the 12-hour day was introduced, than when it was 13 hours.

*Q.* Have you gone into the matter of efficiency?—*A.* We are getting about 92 per cent. efficiency.

*Q.* You say that the reduction from 13 to 12 did give you actual better production in the 12 hours than in the 13 hours?—*A.* Yes.

*Q.* Are you prepared to carry that still further, and say whether a reduction from 12 to 11 hours will make any difference?—*A.* When the mills were working 13 hours a day, many of them were left without proper supervision and a good deal of time was lost in the mornings and evenings owing to the heads of departments not being present. Mills that are not getting the full efficiency now for the hours worked would probably do better with shorter hours and constant supervision by the staff during working hours.

*Q.* Now take the question of the condition of the labourers themselves: would it not be to their advantage and to the advantage of the mill itself to reduce their hours of labour, so that they could turn out in the end better work?—*A.* Well, that is a very wide point. I am living not very far from the mills; and find they don't make good use of their leisure hours, they have a habit of tom-toming and dancing at all hours of the night.

*Q.* You mean that the workmen have all this tom-toming and they do not make use of their leisure to rest? Perhaps they want some excitement after their hard work. If their working hours are less, do you think they would tom-tom still more?—*A.* Yes, as much as they could get time for.

*Q.* Up to what hour do they keep this going?—*A.* They go on demonstrating up to 12 or 1 at night.

*Q.* Then you don't believe that a reduction in hours would ultimately produce better conditions?—*A.* Well, I think you will have to begin while they are young and give them elementary education.

◆

## WITNESS No. 287.

### MR. H. D. GILL, A.M.I.C.E., *Partner in the firm of Richardson and Cruddas, Byculla Ironworks, Bombay.*

**Mr. H. D. Gill.**

### WRITTEN EVIDENCE.

NOTE.—The following remarks are intended to relate only to the engineering industry and to conditions which obtained before the war. Present conditions are altogether abnormal.

### I.—*Financial aid to industrial enterprises.*

**Capital.**

I have no personal experience in raising capital for industrial enterprises and, therefore, cannot speak from direct knowledge. My opinion, however, is that for undertakings offering a good return and floated by people or firms of good standing and repute no undue difficulty is met with in raising capital. Capital, especially Indian capital, is naturally shy of new ventures, and there may be difficulty in inducing firms of repute to interest themselves in floating undertakings in new or nascent industries. To meet this difficulty some form of Government financial assistance or guarantee would, no doubt, be a great help. The precise form and extent of the assistance should, I think, depend on circumstances, and each industry or class of industries should be considered separately, but, in my opinion, the introduction of moderately protective import duties would, generally speaking, be simpler and more effective than any of the methods of direct financial assistance enumerated. In the latter category, however, I would not include the guaranteed or preferential purchase of products by Government as, subject to considerations of quality and price, I consider Indian industries have a right to expect this as a matter of course, rather than that it should be looked upon as anything of the nature of a concession. So far as the engineering industry is concerned, there is no need for Government pioneer factories, nor, so far as I am aware, is the industry hampered by conditions under which it is financed.

## II.—*Technical aid to industries.*

Government assistance.

The engineering industry receives no technical aid from Government nor does it, in my opinion, need any. The question of technical education is dealt with under Section V.

## III.—*Assistance in marketing products.*

Commercial museums and sales agencies.

Neither commercial museums nor sales agencies are likely to benefit the engineering industry.

Exhibitions.

Industrial exhibitions, such as that held a few years ago at Allahabad, cannot fail to have a considerable educative effect, and in this way would accelerate the development of industries in general. I think Government should encourage such exhibitions to a reasonable extent with this object in view.

Trade representatives.

As regards trade representatives in other countries, not until the engineering industry in this country is within measurable distance of meeting the requirements of India will there be any need to consider this proposal, so far as this particular industry is concerned. I am not able to speak for other industries.

Government patronage.

In the matter of Government patronage I consider that the working of the present rules relating to the purchase of stores by Government departments is not conducive to the development of local industries, and, in my opinion, it is by an improvement in this direction that the engineering industry can be most benefited. The Government is by far the largest purchaser of engineering stores, plant and machinery, and the whole industry is mainly dependent on the Government policy in this respect. The existing rules are the outcome of many years of agitation by local engineering firms, and, so far as these relate to the purchase of articles manufactured in India from Indian materials, there is not much cause for complaint, except for the rather ominous threat in the concluding sentence of rule 8. The rule reads as follows:—

> RULE 8.—FORECAST OF REQUIREMENTS *which should under the rules be complied with by indent on the India Office.*
>
> *All requirements should be fulfilled locally in accordance with the provisions of the Resolution No. 4941-4988-102, dated the 14th July 1909, provided that quality and price are not unfavourable and provided that such purchase does not violate any of the instructions contained in these rules. In cases, however, in which stores have to be obtained through the India Office, every effort should be made to foresee requirements so that the indents may be despatched in ample time.* Persistent failure of any officer to make such efforts should be brought to notice by the local Government or other authority, which may, at its discretion, cancel or reduce the powers of sanction entrusted to the officer at fault.

Inasmuch as the latter part of this rule is directed only against officers who fail in connection with home indents and not against those who fail in connection with local indents, it seems to me that it must have the effect of discouraging rather than otherwise the placing of as much work as possible in the country. The same applies to articles made in India from imported materials, but in this case there is the further stipulation that such articles may only be ordered when their price is "as low that at which articles of similar quality can be obtained through the India Office." This condition, in my opinion, operates unfairly towards local industry, as the cost of any article naturally depends on the number or quantity ordered. I consider that, until the industry has attained a much higher state of development than that in which it at present finds itself, the stipulation as to price comparison should not be unduly pressed. The published lists of articles purchased through the Secretary of State do doubtless serve a useful purpose from an informative point of view, but their practical result is not very apparent for obvious reasons. It is no doubt interesting to the struggling Indian engineering industry to see the volume and nature of the stream of orders flowing along the well-worn channel to benefit the industrial fields of other countries, including even Germany (I understand that some of the shore spans of the renowned Sara Bridge over the Ganges were obtained from Germany), but what the local industry wants is that a gradually increasing proportion of this stream should be retained in this country.

It would, of course, be a fatal mistake suddenly to place all Government orders locally, as facilities do not exist to cope with such a volume of business, but this is no reason why a move should not be made in this direction. Safeguards will doubtless be necessary, especially in the early stages, before the industry has become fully developed, and one of the most important, in my opinion, is a measure of protection by means of an import duty. Another important matter from an Imperial point of view is the adoption of measures to prevent the trade getting into the hands of other than British subjects. On these lines I consider that the Government might safely relax the present restrictions against the local purchase, not only of articles made from imported materials, but also of articles wholly imported, and if such a policy were adopted, there is no doubt that capital and enterprise would not be backward in seizing the opportunity of manufacturing much locally which is now imported. The local manufacture of some articles would, no doubt, be taken up sooner than that of others, and in some cases importation might continue for many years, but even so the Government is not likely to be a serious loser. The larger municipalities, such as that of Bombay, place practically all their contracts locally on the public tender system, and it is known by all who have anything to do with such that the costs of supplies thus obtained compare favourably rather than otherwise with those of similar articles obtained by Government under the ordinary Government home indent procedure. It should be borne in mind that a local supply, whether of the finished article or of the materials of which it is made, must be preceded by a local demand, and, even if by the adoption of these measures the cost to Government should be increased (which is not at all certain), is it not a price worth paying in order to secure the establishment of a flourishing engineering industry in this country ? Even in the case of articles wholly imported, the placing of orders locally would mean that larger stocks would be kept here, the importance of which cannot be over-estimated. In addressing Government on this subject so long ago as August 1888 my firm pointed out the serious consequences which might result from the reduced stocks in case of communication with the home country being temporarily interrupted in the event of a European war. How accurate was this prediction is well known to those connected with the engineering industry and also to the Military authorities. Not only is the engineering industry so important for the defence and safety of the country ; it is equally important to the development of its vast stores of agricultural and mineral wealth. There can be no doubt, therefore, as to the wisdom of taking all reasonable measures to secure the establishment of a flourishing engineering industry in this country.

### IV.—*Other forms of Government aid to industries.*

The engineering industry is not directly affected by the Government's policy as to supply of raw materials or land.

### V.—*Training of labour and supervision.*

Lack of primary education no doubt does hinder industrial development, but, I think, mainly indirectly. A higher standard of education must eventually call for a higher standard of living, which in turn requires higher wages, which can only be secured by higher efficiency and skill. It is perhaps difficult to distinguish clearly between cause and effect in matters of this kind, but the position appears to be that the labourers' wants are so few and so amply met by present wages, especially in the case of the more skilled hands, that there is no marked general desire for improvement. In the engineering industry the general practice has been and still is to employ skilled European foremen to train and teach the labour under their control, and the results in the main are satisfactory so far as they go.

Apprentices are mainly of the illiterate or uneducated class, and these receiving their training in the ordinary way develop in due course into skilled workmen. So far as the production of skilled workmen is concerned, I have not found any noticeable superiority in lads from industrial and technical schools. The latter are generally drawn from classes in which there is a strong prejudice against manual labour, with the result that with few exceptions they do not acquire the practical knowledge and experience which alone can enable them to apply successfully their theoretical knowledge, and thus make them suitable for filling the higher and more responsible positions. The best remedy for this, so far as engineering is concerned, is probably the growth of a flourishing industry which would provide attractive careers for men of the right stamp.

### VI.—*General official administration and organisation.*

So far as the engineering industry is concerned, I do not consider that the appointment of a Director of Industries or Board of Industries would be of any direct benefit. The various industries, including engineering, are no doubt interdependent, and if development takes place in one industry others are directly or indirectly benefited. As I have already explained, there is ample capital and enterprise ready and waiting to develop the engineering industry as soon as opportunity offers and conditions permit.

### VII.—*Organisation of Technical and Scientific Department of Government.*

The engineering industry does not stand in need of any expert or technical assistance from Government. Technical colleges will be wanted to train men for the higher positions, but to attract the best type of men there must first be a flourishing industry offering a suitable career.

### VIII.—*Government organisation for the collection and distribution of commercial intelligence.*

I have already referred to the lists published by the Director-General of Commercial Intelligence. The other matters mentioned under this heading hardly affect the engineering industry.

### IX.—*Other forms of Government action and organisation.*

The product or material which the engineering industry is chiefly interested i[illegible] of course, steel. It should be compulsory that all steel used on Government work mu[illegible] up to the British standard specification for quality, and a system of Governm[illegible]rtificates is necessary.

In my opinion, it is desirable and practicable to introduce a system of registration or disclosure of partnerships as one necessary step in the direction of some measure for preventing trade getting into the hands of other than British subjects.

Improved transport facilities would benefit all industries, including engineering, and there can be no doubt that feeder railways should be encouraged and roads improved. The shortage of rolling stock at certain seasons on some of the main lines is also well known and the moving of produce thereby greatly impeded.

### ORAL EVIDENCE, 13TH NOVEMBER 1917.

*President.*—*Q.* You say in your printed statement that "the Government is by far the largest purchaser of engineering stores, plant and machinery, and the whole industry is therefore mainly dependent on the Government policy in this respect, but unfortunately the official attitude of the higher authorities to any orders placed locally seems to be, 'Why were these not sent through the India Office?' instead of 'Why were these not placed locally?'" You deduce what you say from rule 8?—*A.* Yes. Going back many years ago, I think you probably know that the restrictions were very much more severe than at present. After much agitation the restrictions have been relaxed to some extent, but traces of the old policy seem to continue. Why I mention this rule 8 is that it seems to me to hold out a threat to any executive officer who does not foresee his requirements in time to enable him to get them through the India Office, while there is no corresponding deterrent in the case of failure in respect of local purchases.

*Q.* That is how you determine the attitude of higher officials with regard to the purchase of stores?—*A.* I put that in as evidence of it, but we have practical evidence at the same time.

*Q.* If that is what you base it on, would you be willing to withdraw it, if I point out to you that you are not quoting the rule at all? The rule you are quoting is dated 12th September 1912. You speak of the rules as "existing rules". The existing rules were published on the 24th July 1913, and rule 8 is as follows:—

> "All requirements should be fulfilled locally in accordance with the provisions of the Resolution number so and so, provided that the quality and price are not unfavourable, and provided that such purchase does not violate any of the instructions contained in these rules. In cases, however, in which stores have to be obtained through the India Office, every effort should be made to foresee, etc."

the rest being the same as in the previous rule as quoted by you.—*A.* That is an improvement on the other. I have not seen a copy of that.

*Q.* Surely your firm, as an up-to-date one, must have seen these rules. You are making an accusation against the Government and quoting a rule that was published in 1912, while there were later rules published in 1913, which you had every opportunity of seeing, being one of the firms supplying Government requirements.—*A.* So far as I know, we have not been furnished with a copy of those rules.

*Q.* They were published in the *Gazette of India* for general information, so that it was up to your firm to find out what the rules are before you accuse Government in public.—*A.* I withdraw the incorrect quotation of the rule, but with regard to the general attitude I still maintain that the working of the present rules is not conducive to the development of local industries.

*Q.* You think that the higher officials still hold that attitude?—*A.* Yes,—less, perhaps, from the wording of the present rules than from the amount and persistence of the agitation which has been necessary in order to get them to their present stage.

*Q.* Even in war time?—*A.* I am speaking of pre-war time.

*Q.* That would be three years ago. It is a long time ago since the war started.—*A.* The war has so altered conditions that there is no alternative at present.

*Q.* There was no time for you to judge of their action. Since the war, like other firms, you have been employed regularly by Government, and as fully as possible, and have nothing to complain of now.—*A.* No, we are fully employed on war work at the moment.

*Q.* You will see that this is corrected in your published evidence?—*A.* Yes,* certainly.

---

* I wish to add the following explanatory note regarding the above oral evidence, Owing to my having rather misunderstood the import of the President's third question, I took it for granted that Rule 8 had been altered much more materially than is actually the case As a matter of fact, I had seen the 1913 rules before drafting my written statement, and it was only due to inadvertence that the 1912 rule was therein quoted. The addition to the latter which appears in the existing (1913) rule is an improvement, but it does not materially affect the point I wished to emphasize, which is simply that the minatory portion of the rule (which is retained exactly as it was) makes the early sending home of indents to Whitehall appear to the ordinary reader to be a much more important matter in the eyes of the Government of India than the exercising of the powers of local purchase which the rules do in measure allow. In any further revision I think the rule in question might well be omitted altogether. It is correctly quoted in full in my revised written statement.

*Hon'ble Sir R. N. Mookerjee.*—*Q*. You make all these complaints, but beyond doing so, have you any suggestion as to how to remedy these defects. You have never suggested how they should be rectified. There must be an authority to call for tenders; they cannot place orders indiscriminately?—*A*. I am only speaking as far as the engineering industry is concerned.

*Q*. I am also putting questions to you regarding engineering matters.—*A*. As far as the engineering industry is concerned, our chief desire is that a greater proportion of Government orders should be placed locally.

*Q*. How? Then they must have a department here?—*A*. Not necessarily. Government officials themselves can call for tenders in the ordinary way.

*Q*. Each provincial Government separately?—*A*. Each executive officer.

*Q*. How is he to know whether he could get the same thing cheaper elsewhere than in Bombay? The Government cannot give orders without ascertaining whether they are getting the goods at best market rates, taking the quality to be the same. What I mean is that it seems to me that you have not thought over that matter closely; you only put one side of the question?—*A*. That involves going into matters in very considerable detail, which it is difficult to do in evidence of this sort. Take the Public Works Department Engineer, he buys a certain amount locally; but his purchasing powers are limited. Up to his limit and, so far as the rules allow, he does generally buy locally, and knows the various sources of supply, and should be able to get competitive tenders.

*Q*. Only locally, but the India Office draws from the whole English market.—*A*. In my view the important matter at the moment is that the Executive Engineer should have more authority to purchase locally.

*Q*. That does not give him the opportunity of knowing whether that particular material could be had from any other province cheaper?—*A*. He has the whole of India to call upon.

*Q*. Under the head of "Training of labour and supervision" you say that education does not improve the quality of the work. Are you not inclined to give education to workmen?—*A*. I say that "lack of primary education no doubt does hinder industrial development, but I think mainly indirectly." What I mean is that I do not think a workman as such will necessarily be any more skilled for being educated.

*Q*. Don't you think an educated workman would do the work more intelligently than one who has not been educated?—*A*. Some of the workmen I have known who have been most skilled in their work have been least educated.

*Q*. Leaving a particular instance out, as being a special case, and speaking generally, don't you think that education will improve their intellect and that they will do better work?—*A*. Yes, but I think it has an indirect effect mainly; these things, such as skill, education, standard of living, etc., must grow together.

*Q*. Education will improve all that you complain about. A man will appreciate how to live well, and will so do his work better.—*A*. I think that is what I mean by indirectly.

*Q*. You accept that?—*A*. Yes.

*Q*. You say, "the general practice has been and still is to employ skilled European foremen to train and teach the labour under their control, and the results in the main are satisfactory so far as they go." Our object is to teach Indians to come to that position. If India has always to employ Europeans, it would never give the same impetus to develop local industries. Keeping that in view do you agree that Indians should be brought up to that position?—*A*. I quite agree with that. Speaking for myself, I should not bring out a European from home if I could employ an Indian to do the same work as satisfactorily.

*Q*. In paragraph VII you say, "The engineering industry does not stand in need of any expert or technical assistance from Government. Technical colleges will be wanted to train men for the higher positions, but to attract the best type of men there must be a flourishing industry offering a suitable career." Until suitable men are available the industry cannot be started; both must go together. How can we have a flourishing industry in the present state of affairs without importing men from outside?—*A*. What I mean is this; in a country like India, instead of there being as at present only half a dozen or one dozen engineering works of moderate size, there would be several times that number if even the present requirements of the country were being met in the country.

*Q*. The men must be there to guide the work?—*A*. It would have to be supervised by Europeans at present; but if the industry was larger and better organised, it would soon attract capable Indian engineers.

*Q*. Until that is done you are opposed to technical colleges?—*A*. No; I say in my written statement that "Technical colleges will be wanted to train men for the higher positions." I have had little experience of the working of Indian technical colleges. The trouble is that

That is not the type of technical college we are aiming at; we want technical colleges which will give theoretical education as well as sound practical training.

*Mr. A. Chatterton.* *Q.* Are you complaining of the lack of support from Government in regard to engineering work locally manufactured, or in regard to engineering stores imported from abroad?—*A.* Chiefly the latter, but I should say all kinds. I think the Government divide them up into three: goods manufactured in India from Indian materials; goods manufactured in India from imported materials; and goods wholly imported.

*Q.* Your remarks apply mainly to the latter class? *A.* The rules, so far as they stand, in regard to the first, make it fairly clear that if officers comply with the rules, they will place those in the first category locally; in regard to the second and third, there are very considerable restrictions which are not of benefit to the Indian engineering industry.

*President.*—*Q.* Not the second; the second is like the first, which gives preference to goods made in India.—*A.* The second is rather more emphatic in the matter of comparing prices.

*Mr. A. Chatterton.*—*Q.* Under present war conditions, have you been able to develop largely the manufacture of local supplies? To what extent are you able to do new work with the degree of protection you have enjoyed? Has any considerable advance been made in the development of local engineering?—*A.* I cannot say that war conditions have had this effect with my firm in particular, because we are almost wholly occupied with war work for Government. The opportunity is there but we have not been able to take advantage of it to any extent. Then of course the question of shortage and high price of materials comes in as well.

*Q.* Have you any Association in Bombay in connection with mechanical engineers? Is there any organisation of the officers of engineering works such as a local branch of the Institute of Mechanical Engineers here?—*A.* No. I think most of the engineering firms here are members of the Indian Engineering Association, whose headquarters are in Calcutta, but this is a trade organisation of engineering firms.

*Q.* Have you got either any local or Indian problems connected with mechanical engineering which it would be particularly desirable to deal with in such an Association, apart from this question of the supply of stores?—*A.* Problems do no doubt arise from time to time, but the engineering firms here in Bombay are as yet so few that it is hardly feasible to form a separate Association in this City.

*Q.* Is there in Bombay any Association of a professional character to which the engineers of private engineering firms and the engineers belonging to the Railway Companies, Loco Shops, etc., may belong? *A.* No, but many local engineers are members of the English Institutions of Civil, Mechanical, Electrical Engineers, etc.

*Q.* How do you recruit your shops for trained labour; do you take in apprentices?—*A.* Yes.

*Q.* What terms do you generally work on?—*A.* Most of our apprentices are of the illiterate class and they start at low rates of wages. We work them possibly for the first month on no wages to test their aptitude.

*Q.* Have you any form of indenture?—*A.* No, not for the ordinary illiterate boys. For educated apprentices we have, but we have only very few of these, not half a dozen at present.

*Q.* From what class do you draw your new labour, are they the sons of people already working in the shops? *A.* Chiefly so, I think.

*Q.* They don't come from any outside source?—*A.* Our smiths are a caste by themselves; they come from up-country.

*Q.* They are regular *lohars*?—*A.* Yes.

*Q.* Are there any facilities in Bombay for giving an elementary technical training to workmen? I am not considering the case of the Victoria Jubilee Technical Institute, but for ordinary workmen?—*A.* Not that I know of. They get the practical training in the works. You mean theoretical training? Not that I know of.

*Q.* Do you provide facilities for teaching them drawing?—*A.* To ordinary illiterate classes one could not do it, I think; it would be futile in the case of boys who cannot read.

*Q.* You could teach him drawing all the same?—*A.* It would be rather difficult. I think it would be a very good thing if that sort of thing could be done. My view is that, instead of teaching educated students in technical colleges practical work, it would be more promising to take the good practical workman or youth of that class and educate him. We have some workmen, who are very capable as such, and I am of opinion that if they were sufficiently educated to be able to read and write and carry on the ordinary work of foremen, they could well fill such positions.

*Q.* Are there any Indian mechanical engineers in your works, men who occupy the higher positions, who would be eligible for membership of the Institute of Mechanical Engineers ?—*A.* Not at present, I think.

*Q.* Have you any views on the subject of training such men out here ? For instance, the question has arisen as to whether they should be trained in the workshops, previous to going through a technical course of study, or whether they should be taken from school and put into a technical college, and then go to the workshops ? –*A.* I cannot say that I would care to commit myself very definitely on this point. As far as my own experience is concerned, I went to a technical college first and afterwards spent 6 or 7 years in the works. In my case I think that was a good arrangement. Each method has its own merits, and much depends on circumstances, so that I do not think it is possible to lay down any hard and fast rule on the matter.

*Q.* Do you think there is anything special in Indian conditions, which would point to one method being better than another ?—*A.* I don't know enough about it to express a definite opinion as to this, but I do know that some of the college students we have had from time to time have been very unsatisfactory.

*Q.* Have you had any very satisfactory men ? –*A.* I am not in touch with the individual workman, but I do not remember having had any reported to me as such.

*Q.* Does the present system of teaching mechanical engineering in this country tend to turn out a proper class of men ?– *A.* No, I think they lack practical experience. Those students who go to college are as a rule drawn from a class who look upon anything in the way of practical work as derogatory. As an example, an extreme one perhaps. We had a student this year, who was in our works for one month, and at the end of that month he came to the Manager and said he was going. The Manager asked why, and the reply was that he had learned all that there was to be learned in our works.

*Q.* In your works would you be prepared to take apprentices for three years from students who were matriculates or undergraduates of a university ? –*A.* Yes, so long as they are amenable to proper discipline.

*Q.* You would put him to work at 7 o'clock in the morning and keep him there all day ? –*A.* Oh yes, they must keep the ordinary works hours which are from 7-30 a.m. to 5-30 p.m. except Saturday afternoons and Sundays which are holidays.

*Q.* Would their services be of any commercial value during those three years, or would you expect them to come without any remuneration at all ?– *A.* We have a regular scale of pay for these apprentices.

*Q.* That is, for the working class apprentices ? –*A.* All have to work.

*Q.* You put them all on the same footing ? –*A.* Yes, except that in the case of the indentured apprentices,we let them work and gain experience in all the different shops.

*Q.* If you were drawing up a scheme for the apprenticing of a boy, would you say three or four years ? –*A.* I think three years should be the minimum ; four would be better. I worked 6 or 7 years.

*Q.* Would that include any time in the drawing office ? –*A.* Not in the ordinary way.

*Sir F. H. Stewart.*—*Q.* Three years from what age– from 14 ?—*A.* I think they are usually older than that. About 16.

*Mr. C. E. Low.*—*Q.* In regard to this question of the purchase of stores ; supposing, instead of having your Stores Purchasing Department in the India Office, as at present, you had your Stores Purchasing Department in India ? How do you think that would work ?– *A.* I am afraid it would be rather a big change to make suddenly. My view is that it might eventually develop into that, but if the India Office Stores Department were transferred to India suddenly, it would be too great a change.

*Q.* That is not the idea ; the idea is that whatever you have in Whitehall, there should be a Stores Purchasing Department in this country.—*A.* As regards engineering, I don't think there is very much that could not be produced here.

*Q.* Are you speaking only with reference to Bombay, or to India generally ?—*A.* To India generally.

*Q.* Do you think that, after the war, there will be a considerable increase in the number of things that can be made in this country ?—*A.* I think if they can be made now or after the war, they could have been made 10 years ago, had the demand existed, but the tendency will no doubt be as you say.

*Q.* But you don't think that for the increased number of articles which could be bought in India, it would be worth setting up a double organisation of that sort ? –*A.* Not so far as engineering is concerned.

*Q.* Are your firm manufacturers mainly, or are you importers ? –*A.* We are both.

*Q*. Can you suggest any other direction by which the method adopted for the purchase of Government stores may be made a means of encouraging the Indian engineering industry ?—*A*. I think relaxation of the rules in favour of local purchase is the one important matter on which the development of the Indian engineering industry depends.

As far as the third category is concerned, let imported articles be bought here. I could mention several things which we ourselves used to import but which we now manufacture, and there are many others which, if the Government would only place the orders locally, irrespective of whether they are manufactured locally or not, would very soon be made here. That is why I asked for relaxation in the case of the third category.

*Q*. And also with reference to the security factor of stocks which you mention ?—*A*. That is another point in favour of local purchase.

*Q*. But you don't think that the relaxation in favour of importers would be injurious to the improvement of the engineering industry in this country ? *A*. I mention in my written statement the one safeguard which I think is necessary, namely a protective duty.

*President.*—*Q*. If you state that articles not manufactured in India could very well be bought here, then engineering firms would be cut out by importing firms ; they would import and stock these articles.—*A*. I think a moderate protective duty would rectify that.

*Mr. C. E. Low.*—*Q*. On the other hand, we have millowners and people strongly pressing for the relaxation of the existing duty on mill stores and machinery ?—*A*. Yes, I know that.

## Witness No. 288.

*Mr. Bamanshaw Jamasjee Jambusarwalla.*

Mr. Bamanshaw Jamasjee Jambusarwalla, *Cotton Merchant and Proprietor of Cotton Gins and Press.*

### Written Evidence.

**Primary education.**

*Q*. 44 (*a*). Yes.

(*b*) Inducements have been given to those who can learn skilled labour in a certain time, but with the exception of few, all are very backward in learning new things.

*Q*. 45. Some primary education should be given.

**Mechanical engineers.**

*Q*. 54. There is a want of uniformity of test in the whole of India. Each Government should recognise the others' certificates by reciprocation.

*Q*. 96. It is desirable in the interests of trade to introduce a system of registration of partnerships.

**Railways.**

*Q*. 97. In my experience trade is suffering a great deal by the lack of railway facilities in the supply of rolling stock. I import *kapas* and cotton from Nandod and Umella on the Rajpipla State Railway to Ankleshwar. As there is not sufficient supply of rolling stock, I am obliged to hold cotton at both places to an extent of two lakhs of rupees worth, waiting for railing, and hence to suffer loss in interest, insurance and extra financing.

**Waterways.**

*Q*. 100. Yes, if the River Narbada be made navigable for round bottom boats, it will help a great deal to the trade from Gayakwar State and from Sunkheda Mevas, which is a very flourishing district. On account of the want of proper facilities the trade is hampered.

*Q*. 102. Nothing has been done.

Yes, further investigation should be made regarding Mokhdi waterfall in Rajpipla State by Government experts.

*Q*. 105. If the Narbada be made navigable, timber and firewood could be brought in big boats to Broach from Rajpipla State forests at a cheap freight.

*Q*. 106. The answer to No. 105 is the same for this question.

*Q*. 110. I have to make some suggestions regarding the cotton trade and the improvements of cotton seed in the district. At the present rate, the name of Broach cotton will be extinct in a few years for the following reasons :—

(1) The *kapas* is brought to this district and especially to railway stations where there are factories, from Kaira, Panch Mahal, Ahmedabad and sometimes from Rajputana and Malwa which qualities are inferior, and the seeds from these inferior *kapas* are mixed with the local *kapas* and sold to cultivators for sowing, and in this way the quality of the crop thus sown is very irregular and is not suitable for Indian mills, which use a better class of cotton. It is exported under the name of Broach cotton, but by doing so the name is spoiled and a time will come when Broach cotton will not be better than Khamgam. Last year on account of short rainfall the staple was very poor and the price it fetched was accordingly poor. In out of the way places, where there are no railway communications, the quality of the cotton has been kept up on account of seeds being genuine.

Mr. Bamanshah Jamasjee Jambusarwalla.

(2) A remedy for this is very easy if the Government will open a seed depôt in every taluka town and sell seeds which are not mixed, and pass an Act prohibiting the cultivators from sowing seeds other than Government seeds. Any one failing to observe the prohibition should be punished. Cultivators insist on using mixed seeds because as a rule the greater the percentage of cotton the poorer the staple, and by sowing poor staple *kapas* they are under the impression that they get a better crop and on account of greater percentage they get better price. But from my experience of the last two years of comparative prices, I am of opinion that by sowing better staple cotton the cultivators make more money.

*Q.* 111. Yes, there is one, to manufacture sugar from the toddy of palm trees which in one village alone of our district are about 50,000. A separate statement for this is attached herewith.

*Q.* 112 (*b*). Yes, in answer to Q. 110 suggestions for the improvement of cotton are embodied.

*Q.* 115. Yes, it is given in my separate statement.

*Note on the Manufacture of Sugar from Palm Toddy.*

In these days of scarcity of sugar it is important to draw the attention of the Commission to this raw material.

In the village of Diva in the Ankleshwar Taluka of the Broach District, there are about fifty thousand palm trees, out of which about 2,000 are tapped for toddy for which Government get duty on the tree and the licence duty under the Abkari Act; the remaining 48,000 are untapped though the trees have matured and can pay to the owners some income and give employment to the labouring class, and thus add to the resources of the district by the toddy from the tree being used for manufacturing sugar. In doing this, the following help and concessions should be given by the Government:

(1) There should be no tax under the Abkari Act on trees tapped for toddy which is to be used for sugar.

(2) The Government must start pioneer factories and demonstrate the industry.

(3) The Government must start the factories at their own expense.

(4) The Government must keep experts also at their expense.

(5) After working the enterprise for about two years if the Government wishes to hand over the factories to private enterprise, I am of opinion that many people will come out to invest their money.

(6) Facilities should be given to teach the art of manufacturing sugar to youths willing to learn.

(7) Even after handing over the factories to private persons the Government should lend the help of experts at a very nominal fee.

The rent of Re. 1 per tree per annum is paid to the private owners of trees.

The annual outturn of 45 gallons per tree is the total production of a tree, so that if even the half the number of trees are tapped, they will give more than a hundred thousand gallons which is a good resource at our command if made use of in these times of sugar famine.

(*Mr. Jambusarwalla did not give oral evidence.*)

### WITNESS No. 289.

### MR. WALTER WARWICK, *Engineer, Messrs. Nowrosjee Wadia & Sons, Bombay.*

*Mr. W. Warwick*

### WRITTEN EVIDENCE.

Mechanical engineers.

*Q.* 54. Yes. Inasmuch as first class engineer certificates in other provinces are not recognised under the Bombay Boiler Act, measures should be taken to make the examinations of equal value and strictness so that the certificates may be recognised all over India.

*Q.* 55. The law in Bombay Presidency does require qualifications for an engineer in charge of a prime mover. In my opinion, those are very strict, theoretically. I should like to see a thoroughly practical examination also, to make sure that the applicants are conversant with the use of tools, in other words that they show themselves capable of doing any necessary skilled labour themselves, instead of leaving everything to the mechanics' shop staff.

(*Mr. Warwick did not give oral evidence.*)

## WITNESS No. 290.

### MAJOR C. F. MARR, I. M. S., *Officiating Medical Storekeeper to Government, Bombay.*

### WRITTEN EVIDENCE.

The Medical Stores Depôt is maintained for the purpose of meeting the medical and surgical requirements of Military Hospitals and those of Civil Hospitals, Grants-in-aid Dispensaries and such Municipal and Native States Medical Institutions in the Bombay Presidency as apply for supplies.

We do not serve private individuals and therefore enter into no competition with private enterprise.

Our duty is to maintain a stock of European and locally manufactured drugs and chemicals, surgical instruments, surgical appliances and such articles as dressings, ligatures etc., necessary for the treatment of the sick.

We also keep up a quantity of specialized equipments for immediate issue to troops ordered on field service.

In a Medical Stores Depôt we do not therefore confine our attention to drugs and chemicals alone, but also to various other classes of goods inseparably associated with medicine and surgery. This report will therefore incidentally cover ground beyond the category of drugs and chemicals.

We also manufacture in our laboratory a large amount of medicines and dressings, and attached to our depôt is a large and well equipped surgical instrument factory under the management of an experienced and qualified European surgical instrument maker.

I propose to deal with the subject under consideration in four heads as follows:—

(A) Articles of European manufacture which are imported through the India Office, London.

(B) Articles of European, Foreign and Indian origin which are purchased in India.

(C) Medicines and surgical dressings which are manufactured in our laboratory.

Articles of European manufacture which may and probably will gradually be manufactured in our laboratory.

(D) Articles of surgical instruments, surgical appliances and field equipments which we manufacture in our factory.

(A) *Imported Stores.* Statement marked A* shows the drugs and chemicals which have been imported from home during the past three years. The quantities and the total cost involved afford an indication of the large consumption of the Bombay depôt. If well equipped and properly conducted pharmaceutical factories existed in India where such drugs, as climatic conditions would permit of being made, were manufactured, it would have materially relieved the strain upon the resources of the United Kingdom and that of the continent upon which we have to depend.

This shows that a very vast field for Indian capitalists exists in the medical and surgical manufacturing industry. Development must necessarily be slow and very carefully supervised.

(B) *Articles locally purchased.*—Statement B* is a list of the articles which we purchase in the open market by annual contract, and it serves to illustrate the extent to which local resources are drawn upon.

(C) *Laboratory Manufacture.*—Statement C* details the articles which have been manufactured in our laboratory during the past three years.

Statement D is a list of imported articles which may, in my opinion, also be made locally. The local manufacture of the articles on this list, so far as medicines are concerned, will, of course, be gradually taken up in the Bombay depôt as soon as circumstances permit, but I would invite a perusal of the remarks made opposite some of the items in the list. The quantities shown opposite each item indicate the requirements of the Bombay depôt, and four times those quantities may safely be taken to represent the total wants of all India, so far as Government is concerned. If the needs of private practitioners are also considered, intending investors will no doubt find drug and surgical instrument manufacture a profitable venture.

It will be seen from statement D that it would profit Indian mills to endeavour to make cloths and wool of the texture required for surgical dressings. I see no reason why we should depend on Europe for such materials. There is quite a sufficiently large consumption of these dressings both in hospitals and in private practice to justify the undertaking.

Similarly, glass and pottery works should be encouraged to perfect their productions, as the demand in regard to both these classes of goods is sufficiently attractive to encourage development.

---

* Not printed.

The Forest Department should also consider the desirability of introducing a systematized industry for making packing cases. Tradesmen depend to a great extent on the deal planks obtained from large Europe packing cases to make packing cases. We have in turn relied for years together upon local dealers for our packing cases. Owing to the reduction of imports and the diminution in available planking for purposes of making packing cases, our contractors failed us at a critical time, causing no small amount of inconvenience.

Luckily we came to learn that the Agent to the Mysore State was in a position to supply from Shimoga shooks cut to any given measurements with which to make packing cases. We accordingly turned to that officer and completed an arrangement by which we are able to obtain a wagon load at a time. The putting together of the different parts is being carried out by local carpenters on the depôt premises. The prices of these cases are higher than those at which dealwood cases are usually obtained, but in point of strength and safety of carriage of goods they excel the rubbishy cases made from scraps of deal.

There are many supply departments of Government in Bombay and in Poona, both Civil and Military, whose total requirements would be sufficiently large to induce the establishment of box-making at some station nearer to Bombay.

Plenty of timber is, I believe, procurable in the jungles of the Thana, Nasik and Dharwar Districts, and the Forest Department might give this matter their attention.

The gas works might be induced to conserve a large amount of valuable materials which they are at present allowing to run to waste. This would mean the installation of some expensive plant, but the expense, I feel sure, will be returned a hundred-fold if the enterprise is efficiently supervised. The chief by-products from the manufacture of coal gas are those named below :—

Sulphur.
Cyanides.
Ammonia and ammonia compounds.
Naphtha oil.
Benzene and toluene.
Phenol.
Cresols.
Creosote.
Naphthalene.
Anthracene including new Acuflavine (Flavine).
Pitch.
Gas carbon.
All aniline dyes.
Manufacture of Salvarsan.

*Note.*—1 ton of tar yields 12 gallons of benzene and toluene.
1 ton of tar yields ½ ton of pitch.

Even if the Gas Company were not prepared to purify these by-products pharmaceutical chemists would doubtless be only too ready to take them over in their crude state for ultimate purification. Government might be induced to interest itself in this matter.

Statement marked E* is a list of the articles which are at present obtained from Government factories in India.

(D) *Surgical instruments and appliances.*—The development of the manufacture of surgical instruments and appliances has been gradual but very systematic.

In the earliest days of the formation of this depôt repairs to surgical instruments could not be carried out in Bombay with the result that either large condemnation became inevitable or articles had to be sent home for repair.

This procedure appears to have been in vogue for several years, but about 30 or 35 years ago, during the administration of Surgeon-General Hunter and when the late Brigade Surgeon W. Dymock was Medical Storekeeper, the question of carrying out repairs to surgical instruments locally appears to have been discussed, and it was decided to bring out a trained artisan from home. Mr. Edmund Eyres was accordingly selected from Weiss' Surgical Instrument Factory and sent out to Bombay by the Secretary of State as a paid servant.

Assisted by two native workmen, Mr. E. Eyres carried out such repairs as were possible in those days. His advent, however, marked an epoch in the history of this depôt, for within two or three years of his arrival the idea of starting a factory for the manufacture of instruments in India began to be considered.

After some deliberation the idea took definite shape and Mr. E. Eyres' position was altered from a paid servant to that of a contractor, and he was accordingly installed as the Surgical Instrument Maker to Government.

The work steadily developed, with the result that condemnations diminished and importation decreased year after year in proportion as native workmen became more and more trained.

Surgical instrument-making demands considerable skill, and it was no easy matter therefore to develop this industry which embraces forgemen, benchmen, turners, fitters, carpenters, painters, tailors, cobblers and tinkers. To Mr. Edmund Eyres, however, the thanks of the Government are due for bringing the factory to the state of perfection in which it to-day stands.

---

* Not printed.

From the small and insignificant concern it was when started, it has emerged into a self-contained factory of considerable magnitude where a large percentage of our surgical instruments, appliances and field equipments are manufactured.

A past master in his art, than whom it would be difficult to find a better, Mr. Eyres has lost no opportunity of improving and perfecting the output of his factory. The scrupulous care with which every article is turned out in his factory is a trait which characterizes Mr. Eyres' honesty of purpose. Nothing is made in his factory which does not equal the highest graded production of Europe.

Mr. Eyres' factory has proved a very valuable asset to Government, especially in these days when materials are difficult to obtain from home.

The factory is working at the highest possible tension to meet the unprecedented demands of the war.

Recently Mr. Eyres has developed the manufacture of artificial limbs and orthopedic boots for the wounded returned to India. These limbs are of excellent quality and are made to suit the Indian climate.

A complete set of special appliances for the orthopedic War Hospital at Cawnpore was also made in this factory.

I append a list marked F* of the articles usually manufactured by Mr. Eyres, showing the value of his output during the past three years.

This factory has not only endeavoured to meet the needs of our depôt but also those of the other depôts in India.

Mr. Eyres has had many difficulties to contend with, the chief being his struggle with the local labour market.

### *General Remarks.*

My experience as Medical Storekeeper leads me to suggest that legislation on the lines of the Food and Drugs Act prevailing at home should be introduced in India. The native labourer is not capable of turning out products which can be relied on for quality and quantity unless he is constantly and closely supervised. The excellence of the work turned out by Mr. Eyres affords an instructive example of what can be done in India under trained and qualified supervision. The drug industry is one which possesses considerable facilities for malpractice. The life of a patient is dependent upon the action of drugs, and the manufacture of drugs and medicinal compounds should not be allowed except under a licence.

The large amount of drugs which Government have had to purchase in the Indian market has led some enterprising individuals to set themselves up as manufacturers of drugs. These as at present constituted are, in most cases, not reliable. None but those who have undergone a proper and complete training in pharmacy and qualified at a recognized institute should be permitted to manufacture. I would therefore suggest that facilities should be given to the study of pharmacy in India, and this could be achieved by opening training colleges at convenient centres. There is a vast and profitable field in the drug industry, but it must be approached from a scientific point of view and conducted under expert and qualified chemists.

Burroughs Wellcome and Co., Parke Davis and Co. and other manufacturers of similar repute are a household word in Europe and in India because of the reputation they have gained for the purity and reliability of their productions.

(*Witness here gave confidential evidence regarding the manufacture of drugs in India.*)

I would also suggest the formation of a system of continual check by the appointment of a staff of inspectors who should have power to inspect and examine the preparations being made in a drug factory. These inspectors should also be authorized to check the contents of any drug shop in the market. The manufacturer's name should also be published on the label affixed to bottles and packages in which finished products are put up for sale. All products from drug factories should also be subjected to the independent test of a qualified official Chemical Analyst just as we do with the productions of our laboratory.

The absence of legislation on some such lines has long been felt and the provision of such legislation should be treated as of paramount importance if the drug industry is to be successfully developed in India.

---

* Not printed.

## STATEMENT D.

*List of imported articles which can be made in India.*

| Annual requirement of this Depôt. Lbs. | | |
|---|---|---|
| 2,000 | Acid Acetic Glacial | ..From a commercial point of view the manufacture of this article is feasible in India. There is plenty of wood to be had in the forests of India, and if stills are put up on a large scale at the outskirts of forests, dry wood distillation would be a profitable enterprise and in distilling the acetic acid wood, naphtha and methyl alcohol would also be obtainable. |
| 15,000 | Acid Boric | ..This could be made from Indian borax. |
| 600 | Acid Citric | ..The sour lime and lemons are known to grow in India and the manufacture of this preparation on a commercial scale should present no difficulty. |
| 2,000 | Acid Nitric | ..This is already being made by D. Waldie & Co. of Calcutta. |
| 400 | Acid Tannic | ..Can easily be made from Mesopotamia galls. |
| | Aether Aceticus | Aether used to be made at this depôt some years ago but was abandoned owing to spontaneous combustion to which it is very liable in the course of manufacture. The re-introduction of its manufacture is under consideration. |
| 2,000 | Aether Purificatus<br>Aether B. P. | |
| | Amyl Nitris | ..Is a simple preparation and will in all probability be made here. |
| 150 | Argenti Nitras Induratus | Both these used to be made here and the re-introduction of their manufacture is under consideration. |
| 20 | Argenti Nitras Crystals | |
| 150 | Caffein Citras | ..The caffein can be extracted from tea sweepings and tea dust or coffee beans and with the admixture of citric acid the caffein citrate is obtained. |
| 400 | Calcii Chloride | ..The chief raw material required is lime which is plentiful in India. |
| 40,000 | Calx Chlorinata | Lime is plentiful in India and the manufacture of a good specimen of chlorinated lime would enable the manufacture of chloral hydras and chloroform, both of which are very largely consumed. |
| 800 | Chloral Hydras | |
| 8,000 | Chloroform | |
| 200 | Chrysarobinum | ..This is made from Goa powder which could be had without difficulty. |
| 600 | Extract Belladonna Sic. | ..The cultivation of the root should be developed in India. |
| 700 | Extract Sagrada Liq. | The bark will have to be imported as it is grown in America. |
| 20 | Extract Sagrada Sic. | |
| 150 | Extract Filicis Liq. | There will be no difficulty in making these here. |
| 850 | Extract Glycyrrhizæ Liq. | |

All kinds of pills and tablets will be made in our laboratory in the course of time except tablets for ophthalmic and hypodermic use as they involve precision to a very delicate degree.

The following articles are also imported but the development of local industry in their connection should be encouraged :—

*Bandages, Cloths and Wool.*

| | | Annual Expenditure. |
|---|---|---|
| Bandages, triangular, pictorial .. .. .. .. | No. | 3,654 |
| Do. compressed .. .. .. .. | „ | 142,900 |
| Bandages, loose, wove, 2½″ × 6 yards, compressed .. .. | „ | 599,289 |
| Do. 2½″ × 6 yards .. .. .. | „ | 430,353 |
| Bandages, suspensory, cotton .. .. .. .. | „ | 3,305 |
| Do. plain, gauze, compressed .. .. .. .. | „ | 1,822 |

| | | Annual Expenditure. |
|---|---|---|
| *Gauze.* | | |
| Gauze, corrosive sublimate, in packets of 5 yards | Yards | 60 |
| Gauze, plain | ,, | 389,017 |
| Do. compressed, in packets of 3 yards | ,, | 324,618 |
| Gauze, double cyanide, in packets of 20 yards | ,, | 305,657 |
| Do. compressed, in packets of 2½ yards | ,, | 479,953 |
| *Wool.* | | |
| Wool, boric, in 1-lb. packets | Lbs. | 15,780 |
| Do. carbolized, in 1-lb. packets | ,, | 475 |
| Wool, cotton, absorbent, in 1-lb. packets | ,, | 125,000 |
| Do. compressed, in 2-oz. packets | ,, | 55,000 |
| Wool, double cyanide, in 1-lb. packets | ,, | 19,500 |
| Do. compressed, in 1-oz. packets | ,, | 28,900 |
| *Pottery Articles.* | | |
| Gallipots, ½ oz. to 8 ozs. | No. | 11,427 |
| Jars, 4 ozs. | ,, | 1,294 |
| Do. 12 ,, | ,, | 122 |
| Do. 4 lbs. | ,, | 137 |
| Do. 6 ,, | ,, | 510 |
| Do. 8 ,, | ,, | 51 |
| Do. 10 ,, | ,, | 150 |
| Do. 12 ,, | ,, | 12 |
| Pans, bed, earthenware, slipper-shaped | ,, | 475 |
| Pots, Delf, with cover, 1 oz. | ,, | 72 |
| Do. 4 ozs. | ,, | 328 |
| Do. 8 ,, | ,, | 334 |
| Do. 1 lb. | ,, | 289 |
| Do. 2 lbs. | ,, | 31 |
| Urinals, earthenware, male | ,, | 607 |
| Do. female | ,, | 28 |
| Cups, feeding | ,, | 1,452 |
| Funnels, composition, 2 ozs. | ,, | 114 |
| Do. 4 ,, | ,, | 387 |
| Do. 8 ,, | ,, | 50 |
| Do. 1 pint | ,, | 30 |
| Do. 2 pints | ,, | 14 |
| Gallipots, set of 3, 2½″ × 2″ × 1¾″ | Sets | 400 |
| Do. 4, from 3″ to 2″ diameter, nested | ,, | 400 |
| Gallipots, cylindrical, 32, 16, 12, 8, 6, 4, 3, 2, 1 and ½ oz. in 2 nests | Nil. | |
| Pestle and mortar, composition, 4 ozs. | No. | 62 |
| Do. 8 ,, | ,, | 100 |
| Do. 1 lb. | ,, | 30 |
| Do. 2 lbs. | ,, | 9 |
| *Glassware* | | |
| Catheter, female, glass | No. | 66 |
| Depressors, tongue, glass | ,, | 52 |
| Apparatus, irrigation, glass nozzle for | ,, | 100 |
| Apparatus, saline infusion, nozzles, glass, spare, for | ,, | 10 |
| Do. glass funnels, spare, for | ,, | 6 |
| Apparatus for administering Salvarsan, funnels, glass, cylindrical, plain | ,, | 6 |
| Do. glass, Y, pieces | ,, | 6 |
| Do. connecting (window) pieces | ,, | 6 |
| Do. glass, T, pieces | ,, | 6 |
| Do. glass bowls | ,, | 3 |
| Apparatus, urinometer, pipettes for | ,, | 53 |
| Do. rods, glass, for | ,, | 24 |
| Do. test tubes, nest of 6, for | Sets | 500 |
| Douches (or cups), eye, glass | No. | 1,000 |
| Irrigator, glass, 3-pint, glass nozzles, spare, for | ,, | 60 |
| Syringes, urethral, glass, ¼ oz. | ,, | 32 |
| Do. ½ ,, | ,, | 750 |
| Do. 1 ,, | ,, | 830 |
| Do. 2 ozs. | ,, | 387 |
| Do. 3 ,, | ,, | 285 |

| | | Annual Expenditure. |
|---|---|---|
| **Syringes**, wound, glass, 4 ozs. | No. | 630 |
| **Tubes**, Maiocchis | ,, | 450 |
| **Bell jars**, green glass | ,, | 8 |
| **Capsules**, glass, 2" (5 cm.) | ,, | 150 |
| **Plain tubes for centrifuge** | ,, | 30 |
| **Dishes**, petri, diameter 3," depth 15 mm. | ,, | 140 |
| Do. 3½" by 5 millimeters | ,, | 600 |
| Do. of bottom dish 15 cm. | ,, | 540 |
| **Funnels**, glass, plain, 2" | ,, | 50 |
| **Receivers**, glass, plain | ,, | 7 |
| **Test tubes**, set of 6 | Sets | 3,000 |
| Do. 6" × ¾" | No. | 10,000 |
| **Watch glasses**, strong. flat bottom, 2½" | ,, | 250 |
| **Funnel**, glass ribbed, 3¼" | ,, | 16 |
| Do. 7½" | ,, | 29 |
| **Boxes**, glass, with roller, 6½" × 5½" × 3¾" | ,, | 35 |
| Do. glass lids, 6½" × 5½" × 3¾" | ,, | 99 |
| **Bottles**, dropping, N. M., 2 ozs. | ,, | 441 |
| **Bottles**, drop, eye, N. M., 1 oz. | ,, | 1,311 |
| **Dredgers**, powder, glass | ,, | 211 |
| **Funnels**, glass, 1 oz. | ,, | 4 |
| Do. 2 ozs. | ,, | 33 |
| Do. 4 ,, | ,, | 60 |
| Do. 8 ,, | ,, | 34 |
| **Glass** for settling urine, conical, 6 ozs., 6½" cone, base 3" | ,, | 344 |
| **Jars**, glass, 8" × 4" (inside measurements) | ,, | 149 |
| **Measure** glass, 1 oz. | ,, | 972 |
| Do. 2 ozs. | ,, | 1,499 |
| Do. 4 ,, | ,, | 1,638 |
| Do. 8 ,, | ,, | 891 |
| Do. 1 lb. | ,, | 376 |
| Do. 2 lbs. | ,, | 36 |
| Do. minim, in case | ,, | 671 |
| Do. to 1 drachm, on foot | ,, | 1,692 |
| Do. and tumbler, in case | ,, | 136 |
| Do. 4 ozs., in case | ,, | 5 |
| **Pestle** and mortar, glass, 8 ozs. | ,, | 48 |
| **Rods**, glass, 9" | ,, | 562 |
| **Slabs**, glass, 8" | ,, | 21 |
| **Troughs**, glass, 8" × 4" | ,, | 9 |
| **Troughs**, ligature, glass, 2 reels | ,, | 52 |
| Do. 4 ,, | ,, | 55 |
| **Urinals**, glass, male | ,, | 273 |
| Do. female | ,, | 1 |
| **Jars**, glass, 1 gallon | ,, | 17 |

*Bottles.*

| | | | | |
|---|---|---|---|---|
| **Bottles**. green, stoppered, round, N. M., | | 4 lbs. | No. | 3,438 |
| Do. | do. | 3 ,, | ,, | 1,323 |
| Do. | do. | 2 lbs. | ,, | 5,895 |
| Do. | do | 1 lb. | ,, | 5,585 |
| Do. | do. | 12 ozs. | ,, | 1,760 |
| Do. | do. | 8 ,, | ,, | 5,897 |
| Do. | do. | 6 ,, | ,, | 1,791 |
| Do. | do. | 4 ,, | ,, | 5,329 |
| Do. | do. | 2 ,, | ,, | 3,579 |
| Do. | do. | 1 oz. | ,, | 1,123 |
| **Bottles** green, stoppered, round, W. M., | | 4 lbs. | ,, | 695 |
| Do. | do. | 3 ,, | ,, | 337 |
| Do. | do. | 2 ,, | ,, | 1,728 |
| Do. | do. | 1 lb. | ,, | 1,890 |
| Do. | do. | 12 ozs. | ,, | 206 |
| Do. | do. | 8 ,, | ,, | 2,596 |
| Do. | do. | 6 ,, | ,, | 176 |
| Do. | do. | 4 ,, | ,, | 1,456 |
| Do. | do. | 2 ,, | ,, | 728 |
| Do. | do. | 1 oz. | ,, | 387 |

| | | | | Annual Expenditure. |
|---|---|---|---|---|
| Bottles, green, unstoppered, round, N. M., | | 4 lbs. | No. | 5,413 |
| Do. | do. | 3 ,, | ,, | 5,186 |
| Do. | do. | 2 ,, | ,, | 28,096 |
| Do. | do. | 1 lb. | ,, | 15,154 |
| Do. | do. | 12 ozs. | ,, | 3,765 |
| Do. | do. | 8 ,, | ,, | 8,454 |
| Do. | do. | 6 ,, | ,, | 11,641 |
| Do. | do. | 4 ,, | ,, | 8,315 |
| Do. | do. | 2 ,, | ,, | 4,930 |
| Do. | do. | 1 oz. | ,, | 4,704 |
| Bottles, green, unstoppered, round, W. M., | | 4 lbs. | | 5,643 |
| Do. | do. | 3 ,, | ,, | 1,804 |
| Do. | do. | 2 ,, | | 9,530 |
| Do. | do. | 1 lb. | ,, | 10,607 |
| Do. | do. | 12 ozs. | ,, | 1,872 |
| Do. | do. | 8 ,, | ,, | 6,423 |
| Do. | do. | 6 ,, | ,, | 4,217 |
| Do. | do | 4 ,, | ,, | 4,653 |
| Do. | do. | 2 ,, | ,, | 7,731 |
| Do. | do. | 1 oz. | ,, | 7,897 |
| Bottles, amber, stoppered, round, N. M., | | 4 lbs. | ,, | 136 |
| Do. | do. | 3 ,, | ,, | 940 |
| Do. | do. | 2 ,, | ,, | 2,604 |
| Do. | do. | 1 lb. | | 613 |
| Do. | do. | 12 ozs | ,, | 671 |
| Do. | do. | 8 ,, | ,, | 615 |
| Do. | do. | 6 ,, | ,, | 621 |
| Do. | do. | 4 ,, | ,, | 495 |
| Do. | do. | 2 ,, | ,, | 468 |
| Do. | do. | 1 oz. | ,, | 215 |
| Bottles, amber, stoppered, round, W. M. | | 2 lbs. | ,, | 100 |
| Do. | do. | 1 lb. | ,, | 50 |
| Do. | do. | 12 ozs. | ,, | 67 |
| Do. | do. | 8 ,, | ,, | 30 |
| Do. | do. | 6 ,, | ,, | 52 |
| Do. | do. | 4 ,, | ,, | 16 |
| Do. | do. | 2 ,, | ,, | 13 |
| Do. | do. | 1 oz. | ,, | 6 |
| Bottles, amber, unstoppered, round, N. M., | | 4 lbs. | ,, | 29 |
| Do. | do. | 3 ,, | ,, | 52 |
| Do. | do. | 2 ,, | ,, | 165 |
| Do. | do. | 1 lb. | ,, | 829 |
| Do. | do. | 12 ozs. | ,, | 170 |
| Do. | do. | 8 ,, | ,, | 185 |
| Do. | do. | 6 ,, | ,, | 220 |
| Do. | do. | 4 ,, | ,, | 57 |
| Do. | do. | 2 ,, | ,, | 117 |
| Do. | do. | 1 oz. | ,, | 4 |
| Bottles, amber, unstoppered, round, W. M., | | 4 lbs. | ,, | 53 |
| Do. | do. | 3 ,, | ,, | 9 |
| Do. | do. | 2 ,, | ,, | 180 |
| Do. | do. | 1 lb. | ,, | 432 |
| Do. | do. | 12 ozs | ,, | 236 |
| Do. | do. | 8 ,, | ,, | 491 |
| Do. | do. | 6 ,, | ,, | 138 |
| Do. | do. | 4 ,, | ,, | 10 |
| Do. | do. | 2 ,, | ,, | 2 |
| Do. | do. | 1 oz. | ,, | 1 |
| Bottles, practical, poison, dark blue, stoppered, N. M., | | 2 lbs. | ,, | 318 |
| Do. | do. | 1 lb. | ,, | 1,002 |
| Do. | do. | 12 ozs. | ,, | 247 |
| Do. | do. | 8 ,, | ,, | 1,493 |
| Do. | do. | 6 ,, | ,, | 278 |
| Do. | do. | 4 ,, | ,, | 1,696 |
| Do. | do. | 2 ,, | ,, | 644 |
| Do. | do. | 1 oz. | ,, | 743 |

| | | | | Annual Expenditure. |
|---|---|---|---|---|
| Bottles, practical, poison, dark blue, unstoppered, N. M., | | 2 lbs. | No. | 20 |
| Do. | do. | 1 lb. | ,, | 1.936 |
| Do. | do. | 12 ozs. | | 481 |
| Do. | do. | 8 ,, | ,, | 1,691 |
| Do. | do. | 6 ,, | ,, | 1,596 |
| Do. | do. | 4 ,, | ,, | 978 |
| Do. | do. | 2 ,, | ,, | 1,798 |
| Do. | do. | 1 oz. | ,, | 929 |
| Bottles, practical, poison, dark blue, unstoppered, W. M., | | 1 lb. | ,, | 50 |
| Do. | do. | 12 ozs. | ,, | 20 |
| Do. | do. | 8 ,, | , | 24 |
| Do. | do. | 6 ,, | ,, | 25 |
| Do. | do. | 4 ,, | ,, | 40 |
| Do. | do. | 2 ,, | ,, | 108 |
| Do. | do. | 1 oz. | ,, | 40 |
| Bottles, amber, stoppered, square, N. M., | | 2 lbs. | ,, | 13 |
| Do. | do. | 4 ozs. | , | 521 |
| Do. | do. | 2 ,, | ,, | 613 |
| Do. | do. | 1 oz. | ,, | 154 |
| Bottles, amber, stoppered, square, W. M., | | 1 ,, | , | 200 |
| Phials, re-agents, with stoppers and rods | | 3 ozs. | ,, | 17 |
| Do. | do. | 1½ ,, | ,, | 23 |
| Bottles, flint, round, stoppered and capped for urinometer case. | | 1 oz. | ,, | 89 |
| Bottles, blue, unstoppered, W. M., for Santonin | | 12 ozs. | ,, | 8 |
| Do. | do. | 10 ,, | ,, | 48 |
| Do. | do. | 8 ,, | ,, | 17 |
| Do. | do | 6 ,, | . | 5 |
| Bottles, stoppered, green, square, N. M., | | 1 lb | ,, | 25 |
| Do. | do. | 12 ozs. | ,, | 24 |
| Do. | do. | 8 ,, | ,, | 158 |
| Do. | do | 4 ,, | ,, | 2,010 |
| Do. | do. | 3 ,, | ,, | 132 |
| Do. | do. | 2 ,, | ,, | 358 |
| Do. | do. | 1 oz. | ,, | 451 |
| Do. | do. | ½ ,, | ,, | 13 |
| Bottles, stoppered, green, square W. M., | | 1 lb. | ,, | 117 |
| Do. | do | 12 ozs | ,, | 75 |
| Do. | do. | 8 ,, | ,, | 197 |
| Do. | do. | 6 ,, | ,, | 108 |
| Do. | do | 4 ,, | ,, | 1,078 |
| Do. | do. | 2 ,, | . | 629 |
| Do. | do. | 1 oz | ,, | 532 |
| Do. | do. | ½ ,, | ,, | 251 |
| Phials, stoppered, N. M., Spirit Ammon., Aromatic, 1½ ozs., for Companion Field Medical. | | | ,, | 500 |
| Do. | Camphorodyne, 1½ ozs., for Companion Field Medical. | | ,, | 500 |
| Do. | round, N. M., Spirit Ammon., Aromatic, 2 ozs., for Haversack Field Surgical. | | ,, | 500 |
| Phials, green or white, unstoppered, W. M., ¼ oz., for Cholera treatments | | | ,, | 20,000 |
| Tubes, glass, with corks, for Quinine treatments | | | Tubes | 60,000 |

ORAL EVIDENCE, 15TH NOVEMBER 1917.

*President.*- *Q.* You advocate a more efficient control of the manufacture of drugs: would you recommend that all manufacturers of drugs should obtain a special licence for the purpose? -*A.* Yes.

*Q.* Supposing they turn out articles which are not up to the B. P. standard or at any rate are not of the quality claimed on the label what penalty would you suggest?—*A.* I should think that a Foods and Drugs Act or something on the lines of the legislation in vogue at home would answer the purpose. The punishment would depend on the nature of the drug adulterated and the heinousness of the sin. If it is a poison that is adulterated, it will be much more serious than if it was a harmless drug.

*Sir F. H. Stewart.*—*Q.* You say you do not enter into competition with private enterprise; but we have other witnesses who complain that you supply medical stores to mofussil hospitals and dispensaries which are not Government institutions: is that so?—*A.* Of course we do send drugs to dispensaries, but they are Government institutions: we only supply Government institutions. We may supply charitable institutions, but they have got to ask permission before we can supply: we cannot do anything on our own account.

*Q.* Do you think that in normal times private enterprise could supply these needs both in instruments, drugs and other things?—*A.* I think they could: I see no reason why they should not.

*Mr. A. Chatterton.*—*Q.* With reference to your remarks about adulteration, you said you would recommend legislation on the lines of the Foods and Drugs Act: would that be Imperial legislation applicable to all India?—*A.* Yes, but administered by the local Governments.

*Q.* Would it necessitate a very large staff of inspectors?—*A.* I should think so.

*Q.* Is there any one now who can do that sort of inspection?—*A.* The only man we have is the Chemical Analyser to Government.

*Q.* Would you apply such legislation to foods also?—*A.* I think it should apply to adulteration in any shape or form: it should apply to all, but particularly to drugs.

*President.* *Q.* When did you make your arrangement with the Agent of the Mysore Government for shooks?—*A.* It was before I came six months ago.

*Q.* Do you know if there are other firms supplying shooks in the same way?—*A.* I do not know of any.

*Q.* Have you ever applied to the Munitions Board for timber?—*A.* No.

*Q.* You know that the Supply and Transport Corps are getting large quantities of shooks from South India for the despatch of food stuffs to troops?—*A.* I do not know, perhaps they get their supply from the same source.

*President.*—I think they don't confine themselves to that source: you had better write to the Munitions Board for information.

*Sir D. J. Tata.*—*Q.* By supplying to Native States and municipal dispensaries, are you not competing to a certain extent with private enterprise?—*A.* I do not think we compete.

*Q.* Is there not a Government order existing to the effect that what can be made or obtained in this country should have preference over imported articles. But in regard to what can be done Government should not compete with private enterprise?—*A.* Yes, and we try to carry it out.

*Q.* For example, there is an outcry against jail enterprises where they manufacture carpets and other things. There is a great outcry that they compete against private enterprise. So in this class of goods is private enterprise getting fair treatment?—*A.* I think if private enterprise is sufficiently enterprising, they would certainly get fair treatment.

*Q.* With regard to gas works you say that they might be induced to conserve the large amount of valuable material which they are at present allowing to run to waste. Have you any idea about the amount of coal that is used in the gas works? What gas works are you referring to?—*A.* The Bombay Gas Works or any gas works?

*Q.* Are there any other gas works besides the Bombay Gas Works in this country?—*A.* There are gas works in Calcutta.

*Q.* How much coal do they use?—*A.* I do not know exactly. My authority states that you could produce enough benzine from the by-products of the gas works in Bombay to run motor cars.

*Q.* To run all the motor cars in Bombay?—*A.* I do not know.

*Q.* I do not think the Bombay Gas Works use more than 10 to 50 tons of coal a day. Now in the Iron and Steel Works at Sakchi, I think they are using something like 400 tons of coal a day in the coke ovens, and recover about 8 tons of tar from that. From 40 or 50 tons you could only recover a very insignificant quantity. And I do not think they could run all the cars in Bombay with that. It seems very impracticable that such a small quantity could do any of these things. As a matter of fact, no coal works could do that sort of thing.—*A.* It is quite a general statement that I have made.

*Q.* Have you tried to obtain any of the articles in this country which you now get from Europe? Have you tried to ascertain whether you can get them in this country?—*A.* We always try. The chief difficulty is skilled labour which stands in the way of forming suitable factories in India.

*Q.* Are you referring to drugs or chemicals?—*A.* I am referring to all the stores that we keep. We have tapped every possible source of supply for drugs in India. For instance, we are at present getting things from firms in Bombay. Every possible source has been tapped, but one has got to be sure about the quality of the article and the quantity that can be supplied.

*Mr. C. E. Low.*—*Q.* You were speaking about this licensing system, Major Marr, and you propose that nobody should be allowed to sell any class of drugs without a licence; is that system obtaining at home now? Are you aware that there is need for restrictions in respect of the grant of licences under such a system? Would you bring all drugs under that system?—*A.* I think, all drugs.

*Q.* Would you include sulphuric acid?—*A.* Yes.

*Q.* Would you say that anybody is at perfect liberty to manufacture an article of specific strength and quality for medical purposes, or that nobody should be allowed to say that he is producing such things unless his factory is licensed?—*A.* I think that is the right way to combat the evil. Of course the first thing you must be certain about is the quality of the article.

*Q.* How will you make that certain: he will say that he has a Government licence to produce pure drugs; how will you insure that the implied guarantee of a Government licence was made actual?—*A.* As far as I am concerned, I should have it tested by the Chemical Analyser. Of course I would only test, say, 10 per cent. of the total order for any one drug.

*President.*—*Q.* You know the Government of India rules for the supply of articles for the public service, namely, that articles manufactured in India from Indian materials must be given preference and that articles manufactured in India from imported materials must be purchased in India when you are sure that a substantial part of the materials used in the process of manufacture of the articles purchased has been found in India; that of course applies to surgical instruments and you think that you satisfy that rule by making inquiries of other medical store depôts?—*A.* I think more might be done, but we have never actually sent out tenders so far as I know to local firms for the annual supply of surgical instruments.

I quite understand your objection to open tenders.

(*Witness also gave confidential oral evidence.*)

---

## WITNESS No. 291.

### MR. R. B. JOYNER, C.I.E., M.I.C.E., *The Tata Hydro-electric Power Works, Lonavla, Bombay Presidency.*

*Mr. R. B. Joyn*

### WRITTEN EVIDENCE.

### *Memorandum on Water Power in India.*

**Sources of power.**

All industrial enterprises require the use of power either gained by man or animals, or by machinery worked by means of natural sources. The first, which includes agriculture and all hand and small industries, I do not refer to. Machinery can be worked by the wind, by the heat of the sun, by the tides of the sea, by the consumption of fuel, or by the force of falling or running water. The wind is not sufficiently constant to be profitably availed of, except in a small way, without a cheap means of storing its power which has hitherto not been found economically feasible. The heat of the sun in the same way is not constantly available; it has been successfully made to produce power in Egypt to a small extent, but I think, not economically. The tides can only be made to give power economically under very exceptional circumstances and where there is a considerable rise and fall, so tide power is impossible in India. Power obtained by the consumption of fuel, coal or oil in this country can only compete to some extent with those fuels elsewhere, where such can be cheaply obtained and the materials to be converted are easily accessible. Spirit from vegetable products is never likely to be cheap enough to be used on a large scale for power. In most parts of India coal cannot be cheaply obtained and is frequently of poor quality, more especially that which is more generally available to most of the country. Both coal and oil may tend to become scarcer. The only remaining power is that from water and that has not as yet to any great extent been made available in this country. I am convinced that large quantities of water power can be produced at a very low cost per horse-power, in many parts of India, which would be available for all time, and would enable India to successfully compete with other countries for supplying at least its own requirements and be a means of industrial prosperity to the whole country.

**Difficulties of wat power in India.**

2. Water power schemes are however generally difficult in India, because power to be satisfactorily used must be continuous, whilst the rain falls only during a small portion of the year. Perennial rivers with sufficient water throughout the year to give more than a small amount of continuous power, practically do not exist in this country. Water must be stored to be used during the eight months dry season. Storing of sufficient water is not only expensive but in the great heat much gets lost by evaporation. I have unfortunately only a very limited knowledge of the Himalayas. There might be good storage sites there with a sufficient fall

to give cheap power and at the same time be of great assistance to the existing irrigation works in the North. But such places may not be sufficiently accessible.

**Requirements of sites for cheap power.**

3. The quantity of water required to give a certain amount of power depends upon the "head" available, that is the fall. If a fall of say only twenty feet was available it would require about 5,000 million cubic feet of water to be stored to give 1,000 horse-power, 10 hours daily, through the dry seasons; but if 1,000 feet fall could be obtained, it would require only one-fiftieth of that quantity of water (that is 100 million cubic feet) to be stored to produce the 1,000 horse-power. Or on the other hand the 5,000 million cubic feet of water stored would give about 50,000 horse-power during the dry season with one thousand feet fall. It is thus easily seen that water power projects in this country are not likely to be financially feasible unless a considerable fall is available, as storing water is expensive; and further, the fall should occur in as short a length as possible as the cost of the pipes leading the water to the turbines is very considerable.

Great care required in preparing water projects.

4. Those who invest money in power projects must be assured that they may depend without fail on a constant supply, so we must be certain therefore that the catchment areas above such falls, where they occur, are sufficiently large to give the amount of water required, allowing for all losses by evaporation, leakage and losses by friction in the pipes, in the machinery and transmission of the power, not only for a year but constantly, notwithstanding the unfortunate great variations in amounts of rainfall in different years, which India suffers from.

Great possibilities in India.

5. It may be thought with all these exceptional requirements, water power projects, financially favourable, could hardly be found in India. But it is not so, as owing to the fact that the mountainous and hilly regions have the heaviest rainfalls and often precipitous scarps or sharp river falls, there must be many favourable sites. I have myself examined or considered about ten such, on three of which works have already been successfully constructed and some others merely wait promoters, or the help of Government. The question is a comparatively new one in this country, where the difficulties to be overcome are somewhat unprecedented, so that engineers with the necessary experience are scarcely available. Capitalists willing to promote such projects are frequently misled and disheartened by losing money owing to the want of experience in those employed to investigate and propose works. It is a complicated subject on which much experienced care has to be taken, as the initial expenditure must be considerable and any failure from inexperienced design or careless work in construction would be most disastrous.

Help of Government required.

6. It is true that where favourable sites can be found such may sometimes be in places difficult of access, remote from roads or railways, or perhaps also with a paucity of population. But this may often be remedied by the electrical transmission of power, a process now better understood and made more perfect. Or as the profit in the use of such power is generally considerable and the benefit to the country very great, Government may give much help by making the necessary means of communication in the way of roads and branch railways and granting land for works and dwellings, or enabling others to take up such, and by letting investors and the labour know of the proposals and the advantages to be gained. Indian investors are naturally cautious of risking their money in large projects to provide power, unless they can be perfectly certain that such power can be and will be at once satisfactorily utilized.

**Difficulties of capitalists in promoting power projects.**

7. If power thus provided is very much cheaper than any power otherwise produced and is in the neighbourhood where materials required for industrial factories can be easily obtained or grown and the products can be readily sent away, it is evidently very much to the interests of India that such projects should be undertaken and that Government should take every possible means to encourage their promotion. At present capitalists who are anxious to invest money where it will give a good and sure return and at the same time be a benefit to the country and to everyone connected with it, have great difficulties to contend with, and many, to my own knowledge, have lost considerable sums in their endeavours to find promising power projects. This has not been because such sites do not exist, but from the want of sufficient experience in such difficult and complicated work of those who had undertaken the investigation.

**Exceptional requirements of engineers investigating water power proposals.**

8. An engineer competent to produce and design a water power project in India, must not only have had an intimate experience of hydraulic work in this country and of the difficulties of erecting pipes and turbines, etc., but should also be somewhat of a meteorologist, acquainted with the vagaries of the Indian monsoons with the recurring periods of maximum and minimum falls and how such may be affected by the different local circumstances and the proportions of the rain falling which may be collected, and amount of such which would be lost by evaporation according to the many very varied conditions of the surroundings. He should also be a bit of a geologist, to understand the different rocks and their nature, lie of the strata and qualities of the different soils, etc. If the use of the water is contemplated for irrigation, he must also know the requirements of water for the different crops at the different periods of the year and the rates which such can afford to pay for the water. It is not necessary, in designing such a preliminary project, for the engineer to have had experience in electrical work as all the electrical machinery and equipment required for generating,

transforming, transmitting electricity and reconverting to power are supplied by the expert designers and makers. If such are given the data, as the amount of power available at the turbines, the distance to be transmitted, if any, they will give estimates of cost of making, carriage and fixing and will also give the amount of power lost in the different processes and the resulting power which can be guaranteed at the factory shafts or the temperature attainable at the smelting furnaces. There are power projects not requiring conversion to, or transmission of, electricity, which should not be forgotten.

Reasons for Government assistance.

9. It is to my mind plainly the duty of Government, or more especially of an Industrial Department, if such is organized, to employ a trained staff of competent engineers to investigate the possibilities of water power projects, beginning with those which may give evident promises of success, more especially those which may be combined with a use for the water after it has given up its power, for the purposes of much needed irrigation. Such projects should at first be most carefully considered and their cost roughly estimated, taking particular care that everything is taken on the safe side, that is, the estimated cost should be the outside possible cost, making ample allowances for unforeseen difficulties, and also making sure that the amount of power which can be produced should be the least which is absolutely certain to be continuous not only throughout the year, but for all years. If this is done, with experienced care and caution, capitalists would be secure and they, with the smallest investor, would have perfect confidence and mere "Company promoters" whose chief object is too often to make money for themselves, through the ignorance and credulity of the public, could no longer exist and capitalists could no longer be misdirected by incompetent advisers. The reliable information thus made available by Government to all, could be made use of by syndicates or public companies on whom would rest the preparation of the detailed working plans and estimates of cost, for the use of the site they may prefer for the particular work they may propose. It is not sufficient, in my opinion, for a Government, especially in India, merely to point out where waterfalls exist. So much else has to be considered, before a power project could be favourably taken in-hand. Power projects are also possible without natural waterfalls, as for instance along the whole line of the Western Ghats where we have a heavy rainfall on the top of a lofty natural precipice, some hundreds of miles long, with the water running away from instead of down it.

Irrigation can b
combined with
water power.

10. Though water power in India may be only possible by going to the expense of storing large quantities of water, we may often have our compensation in the fact that the water used for power is not consumed, as in mere irrigation and town supply projects, but is generally available for irrigation which in this country, where we have to go the greater part of the year without any rainfall, is a very valuable by-product, as the revenue from irrigation may of itself alone give an appreciable return for the outlay on a water power project. It would be better, at first at all events, to select sites for water power where irrigation revenue could be obtained from the use of the water so stored, not merely for the money directly obtained thereby but for the benefit of the country, as the actual value of the crops which could thus alone be so grown and not otherwise, is so enormous, amounting yearly to many lakhs of rupees, compared to the charges for the water.

Water storage m
cheaper in India
than elsewhere.

11. Again, water can be stored in this country at a third or a quarter of the cost, it would be in other countries. This is not merely on account of the cheaper labour, which would be the chief reason in an earthen dam, but in masonry or concrete dams, it is also because we do not use cement, which for some reason not well known to me, is generally deemed essential elsewhere, though it cannot really be so suitable.

Irrigation can p
duce materials
Industrial Factor

12. Irrigation, using water from a power project, can often be made to produce the materials required for that project, so that the combination of the two should be highly successful, especially as part of the power can be used for making artificial manures, such as cyanamide, nitrate of lime, or sulphate of ammonia, so that such a combination would be perpetually self-contained, and not only that, but it could supply its own light or what may be required for adjacent towns, its own water supply, or for adjacent towns also, and sometimes may be able to supply the power for carrying their raw material to the mills and the finished products away—or might even be made to increase the supply of raw products by electrifying the crops during their growth.

Materials which c
be produced by
irrigation derived
from and usable
water power.

13. To mention some materials which could be produced by irrigation for such industrial purposes—sugar,—which requires water to the canes for most of the year and so cannot on this account be produced in sufficient quantities for consumption demands. Fibres—such as cotton for spinning and weaving, flax, jute, hemp, Rhœa, aloes, Manilla hemp, special kinds of grass, etc., for linen, ropes, gunny bagging, paper-making, etc., oil-seeds and ground-nuts, grain for flour mills, palms for many purposes. Besides these there is the growth of vegetables and fruit, which would be in demand for the increased population caused by the establishment of large industries or for other places. Taking metals, there is, I understand, at present a great demand for aluminium, which may be partly caused by the war, but it is a metal the use of which must increase, if it can be produced at a favourable cost.

This is obtained from bauxite. Deposits of this are not plentiful anywhere in the world, apparently, but in India we are fortunate to possess a large deposit sufficient, I am told, to supply the world's demand for a century or more, adjacent to which I have prepared a water power project which should be very favourable for producing an ample supply of cheap power. Smelting of ores and some other processes can, I believe, be only economically carried on by water power owing to the great heat required.

Paper possibilities and chlorine.

14. Paper again should be made in India sufficient to supply the whole demands of Asia, at least if only of the coarser kinds. It is a question of cheap power and water. Cotton stalks can be used and the forests of India contain many trees which are of no use for building and not available for fuel, but which with water power close to the forests, could be ground up to make paper pulp and paper made by the water power. Failing these, or perhaps preferably, grass and fibres could be grown which might serve the purpose better or at less cost. Where water power is obtainable not too far from the sea, chlorine for which there is always a demand, can be cheaply produced from 'concentrated brine' by electrolysis. I have prepared a project in such a position suitable for both paper and chlorine, now waiting. There are also many small industries for which the cheap labour in this country is well adapted, which could be established where cheap power is available.

Future possibilities of water power.

15. When a cheap and light electric storage battery is invented, which is probably not impossible, the owners of cheap water power should become millionaires, especially those with power not too far from the sea.

Writer's experience of water and power works.

16. It must not be thought that I am drawing merely upon imagination for these proposals, as they are only made after 53 years experience in the design and construction of large works dealing with water, the last 19 of which have been devoted to the possibilities of water power in India and in designing and constructing such and also the consideration of all the large water power works, so many of which have been constructed during the last twenty years in all parts of the world.

An instance of cheap water power in the Nilgiris.

17. As a practical instance of Indian possibilities, I may mention the Nilgiri Hills, which present all the advantages and possibilities of such a successful combined power and irrigation self-contained project, as I have mentioned above. Here we have a lofty hilly plateau, standing precipitously about six thousand feet above the plains, with capacious watertight valleys and a reliable rainfall extending over a period of about six months of the year, where storage lakes can be cheaply constructed, from which at least four thousand feet fall can be made available, thus requiring a comparatively small quantity of water to be stored and so at a very small cost. One valley I estimate could give up to 70,000 horse-power and there are other valleys from which, combined, an equal amount of power at least could be obtained. The power from these hills must be as cheap, or probably much cheaper, than any other site in India known to me. There is a main line of railway at the foot of these hills, with a branch to the top. The main line connects with harbours on the coast about 120 miles off and with Madras and the rest of India. There are extensive fertile plains at the foot, on which the rainfall is somewhat capricious and which would much benefit by irrigation ; on these plains, which are healthy, everything required to utilize the power could probably be grown. There is an important town not far off. Such a proposal, if carried out, must prove a source of prosperity to the promoters and greatly increase the welfare of the country. And there are most likely other such favourable sites in the South of India, where labour is cheap and coal impossible for power.

Water power combined with irrigation.

18. Water power derivable from irrigation works is rarely a practicable proposition, for the reason that irrigation demands for water are very variable according to the season and the kind of crops irrigated, which also depends more or less on the amount of rainfall, or time of its falling, in different years. In many cases the head of water available varies also. Machinery to utilize water for power and for factories is expensive and it does not pay to let the money so expended lie idle, or to be only partially utilized. On the other hand the constant water which a water power supply gives, can in many cases be used for irrigation, especially that of the higher and most remunerative class.

Circumstances connected with water storage.

19. Considering the circumstances connected with water storage—(1) The capacity of valleys normally increases very rapidly with extra depth of water stored. (2) The cost of foundation is proportionately much greater for a low dam than for a high one on the same site. (3) The loss of water by evaporation decreases with the increased depth and size of the lake. It is evident therefore that the larger the quantity of water stored, that is the greater the power produced, the cheaper is the cost per horse-power. This difference of cost is often very considerable. A project to produce 5,000 horse-power may give but a small profit, but [illegible] increased so as to give say ten to twenty times the amount of power, the profit may become very handsome indeed. For this reason it is not advisable where large powers are possible, to allow small projects to occupy such sites. Again, if there are factories or industries, ready at once to utilize cheap power, capitalists may be ready to take up such projects and may readily obtain subscriptions. But in cases where industries or factories have also to be created, as well as large power works, the great cost and difficulty and also the inevitable delay before

the revenue comes in would probably appear to be too much for public companies to take up. This difficulty would be much increased if the proposal included irrigation as a by-product.

Some cases advisable for Government to undertake.

20. It would appear advisable in such cases for the Government themselves to undertake such works, as companies and individuals could not afford to wait to get the handsome returns which could not be obtained till the full development of such combined projects had taken place, which must, of necessity, take some years. High masonry dams must be built slowly and in any case must take four or five years to complete; but they may be able to commence delivering some water in the second or third year, by which time pipes and turbines with the generators, if required, could be fixed or as much as required for the first factories to utilize the water at first available, and canals, etc., could be got ready to distribute the water available for the cultivation. So that the loss of interest on the outlay would be minimized and the whole proposal gradually increased to its full development. All this requires the active help of Government.

Mysore Government Cauvery Power Works.

21. I may mention the case of the power supplied to the Kolar Goldfields from the Falls of the Cauvery. The Mysore Government, I believe, could not induce capitalists to take up the proposal, so they carried out the work themselves and it was most successful. When greater power was required, they proposed to hand the works over to a public company, if such would undertake to duplicate the power which would necessitate the storage of some water. I was asked by a London syndicate some 16 years ago to report upon this and estimate the cost. This promised to be financially most successful, but the Mysore Government then decided that they would carry out the work themselves and have continued to work it since, I believe with great success. This is only a comparatively small water-power work, but is noticeable on account of its success, though the power had to be conveyed some 90 miles to the goldfields. I believe, the Mysore Government are constructing a large storage work, above the Falls of the Cauvery, for irrigation as well as to develop still further the power possible from the Falls.

Government "Power Trusts" proposed.

22. In connection with my suggestion of starting a small establishment to encourage and develop water power I would go further and suggest that it would be advisable for Government to control the water power installation themselves, and that these might be run somewhat on the lines of the various Port Trusts in this country. This would lead to the direct encouragement of industries in the following way. Suppose an industrial company wants to start an enterprise requiring, say 2,000 horse-power. If they put in their own water power installation for this, it would probably be too costly; but 2,000 horse-power taken from a 50,000 to a 100,000 horse-power scheme would be very much cheaper; but no power company would put in such a large scheme without the certainty that the power would all be taken up in a short time. They could not afford to wait for the industries to come to them, nor would they be able to give the same facilities to industries that Government could. If Government constructed a large power project, they would sell the power at a reasonable rate very much cheaper than the consumers could make it themselves; and as more power became available, it would become still cheaper. As the profit justified, the rate could be reduced, giving preference to the first comers among the users, in reduction of rate. The works would be carried out by a loan and the profits used to pay off the interest on the loan and further profits to reduce the rates or to prepare for future extensions. Such a scheme would be a self-supporting institution giving cheap power and directly encouraging industrial enterprises. It would also have the advantage of improving the general prosperity of the country, while public companies too often may chiefly add to the wealth of the rich.

## ORAL EVIDENCE, 15TH NOVEMBER 1917.

*President.*—Your note is so full that I do not think we shall have many questions to ask you to supplement your written evidence.

*Mr. A. Chatterton.*—*Q.* In paragraph 17 of your note you mention about the possibilities of the Nilgiri hills. Have you any information as to the cost of storing water on these hills?—*A.* I have not worked it out in detail, but I have carefully examined the sites and I have inspected the hills generally and what I have stated here I feel confident is correct.

*Q.* You have been good enough to supply us with tables showing the cost of generating a horse power when the capital cost of building reservoirs amounts to so many rupees per million cubic feet of storage capacity, and these tables range from Rs. 400 to Rs. 900 per million cubic feet. Can you give us any rough idea as to the figure best applicable to schemes in the Deccan near the Ghats?—*A.* I should say that Rs. 600 per million cubic feet should be ample as the cost of actual storage capacity.

It may be desirable, however, to make the reservoirs of larger capacity than required to store water of normal years rainfall, so as to enable one to store more water in a year of heavy rainfall to supplement the water collected in a year of light rainfall.

This will increase the annual available power if such power is to be constant from year to year.

In such case if the cost of actual storage capacity is Rs. 600 per million cubic feet, the cost of annual available storage will be somewhat greater.

*Q.* Do you know Lake Fife ?—*A.* I constructed the dam and it cost Rs. 450 per million cubic feet of storage capacity. But the capacity of that was very much larger than we could use. It was fifty years ago now nearly.

*Sir F. H. Stewart.*—*Q.* You say that these hydro-electric projects vary very greatly in their nature in different parts of India ?—*A.* Yes.

*Q.* In paragraph 8 you point out the necessary qualifications of an engineer to deal adequately with the question at all. In paragraph 9 you say, " It is to my mind plainly the duty of Government or more especially of an Industrial Department, if such is organised, to employ a trained staff of competent engineers." Would it be sufficient if you had one such department attached to a Central Department of Industries, or do you want it in each province ?—*A.* I think it should be in one department because it would not be a large department. These men must be specially trained for it. It will be a small department and you had better put it under one head.

*Q.* They will have to be engaged for long periods and the expense would be very heavy ?—*A.* First of all you require to work out a project. That might be a matter of one year or two. Then it would rest with the Government or whoever it was to consider what should be done with the project. The question of construction comes afterwards. What I say is that you require a trained staff of competent engineers to prepare such projects as are suitable and would be paying propositions.

*Q.* You do not think that the preparation of the projects can safely be left to private initiative ?—*A.* No, because the cost is too great. You must get water cheaply and you must collect water in large quantities and that entails a very great expenditure and that would not fetch interest for many years perhaps and a private engineer or a private company cannot face it. I had in my mind the preparation of projects first of all and then Government could decide how to work them. They may pick out the very best ones, the cheapest and the most valuable and the best for irrigation, and say, here is a good project and it will pay well. Then the financial promoters could either take it up themselves or the Government could take it up and lease the power out.

*President.*—*Q.* There is one little sentence about which I wish to ask you. Probably that sentence is due to excessive over-caution. You say, " There is an important town not far off." I suppose you mean Coimbatore ?—*A.* Yes.

*Q.* Is there anything confidential about it ?—*A.* No. I have to be cautious in this way, because the men who are going to undertake projects or promote projects like to keep it as secret as possible. I look upon the utilisation of water power as a very important proposal and by it India can be regenerated and become an industrial nation.

---

## WITNESS No. 292.

Mr. W. Moir.

### MR. W. MOIR, *Engineer, Manager, Messrs. Garlick & Co., Engineers and Founders, Jacob Circle, Bombay.*

### WRITTEN EVIDENCE.

In the following statement I have restricted my evidence almost exclusively to the training of certain classes of workmen, and the means by which, in my opinion, a sound training may be extended and developed—this being a subject on which I can write with some authority, due to my having been in close touch with the training and management of skilled labour in this country for a matter of 25 years.

The success or otherwise of any industry in these days depends on the cost of production ; machinery and appliances are designed with the object of reducing labour charges and rendering unskilled labour more efficient. Here in India, where the simplest machines and labour saving appliances are neither manufactured nor in general use, in my opinion a start should be made by training workmen to appreciate the advantages of labour saving by teaching them to manufacture tools and machinery of a fairly simple kind.

This is not a case for scientific research, the accepted European designs in machinery and tools are quite good enough if they would copy them in this country, with perhaps slight modifications.

The advantages to India in being able to supply and install machinery and appliances of her own manufacture are many : in addition to opening a field for the training of artisans, with the help of such machinery and appliances, the country would be able to manufacture most of the imported hardware to be seen in the bazaars.

Every industry of modern times is more or less dependent on machinery; in whichever direction the industry of this country is developed and extended, machinery is bound to play an important part, and the skilled mechanic not less so.

Capital spent by Government on the manufacture of machinery and training of workmen, would be a safe and sound investment. To my mind the subject is of the very greatest importance in connection with industrial development.

Technical aid to industries, assistance in marketing products and other forms of Government action and organisation will, no doubt, be wisely applied as means of development, my province is dealing with labour, and in this connection the fact I would impress upon the Commission are—

1. That the quality of skilled labour is poor, it is scarce, and is handicapped by ignorance of modern methods of working and by lack of suitable tools;
2. That unless the efficiency of the skilled workmen is improved by adequate training facilities given for learning up-to-date methods, and the acquiring of suitable tools, progress in industry will be hampered and delayed;
3. That the improvement of skilled labour is of the first importance. In established industries, such as cotton spinning and weaving, millowners cannot get skilled mechanics to attend to and keep their machinery up to the mark, in consequence the depreciation and loss of efficiency is far greater in India than in Lancashire.

In Bombay probably the "skilled" labourer is better than elsewhere in India, yet the ingenuity of the craftsman is only evinced in his effort to lessen his individual labour. You will see two men doing the work of one, in turning the leg of a chair, sawing a piece of timber, using a jack plane or grinding a knife. If you ask the reason why, you will be told that labour is cheap, that the workman is physically unfit to undertake such operations singly, or that there is no knowledge of any other means. In a country where such customs exist and are tolerated, a country clamouring for industrial development, how can anyone familiar with western methods and ideas give any but a foremost place to this most vital question?

### *Training of labour and supervision.*

*Q.* 44 (*a*). The lack of primary education hinders industrial development. Reading, writing and counting being universally admitted as aids to industry, illiterates are handicapped at the start, and in consequence the classes from which the best industrial material is drawn are restricted to those who have had the benefit of primary education.

It does not follow that illiterates cannot become good workmen; their education, although restricted to the use of their tools, and the learning of their particular trade is just as good an education as a primary school course, but the learning of a trade is easier to the literate than the illiterate.

(*b*) The only method of improving the labourer's efficiency and skill in engineering and its branches is to teach them as far as possible the best European or American practice.

*Q.* 45 (*a*). Generally speaking I am of opinion that the labourer's efficiency could be improved if their standard of living as regards housing accommodation in sanitary surroundings was made possible. The lack of stamina in the labourers in factories is almost entirely due to their miserable up-bringing and life in filthy and evil-smelling hovels. Many of the cotton mill coolies live at a great distance from their work. there is no home life properly speaking, they leave for their work in the dark, and return in the dark. Such is the life of the factory hands generally.

(*b*) Under this head I propose to deal with engineering and allied branches comprising:—

Pattern making,

Iron and brass moulding,

Blacksmithing,

Turning and machine tool work, and

Fitting and machine drawing.

To improve the efficiency and skill of workmen engaged in the engineering trade it is necessary to start at the foundation, the training of boys in any particular branch they wish to follow. The apprenticeship system has stood the test of time, and is still the best method of training workmen. Practically, the same system of apprenticeship common to British workshops might be followed out in India.

Anyone with experience in handling labour in the engineering trades must admit that the supply of skilled labour is very small, and the class of men available is anything but efficient. Practically, all industries are dependent on skilled mechanical labour and in this country the absence of intelligent and resourceful mechanics is a felt want.

The principal training shops for skilled workmen in the engineering trade are those of the railway companies, but the railway companies absorb all or most of the workmen they train.

Privately owned or joint stock engineering concerns have a great difficulty in following out a strict apprenticeship system; apprentices after working for two or three years leave the shops where they have been trained and seek higher pay elsewhere. The majority never serve a full apprenticeship. As a consequence, such firms have now little interest or enthusiasm in the training of apprentices.

The system of indentured apprenticeship cannot be fully developed without some protection from Government. It should be made a punishable offence for anyone knowingly to engage a workman whose apprenticeship has not been completed, also the parent or guardians and the apprentice himself should be liable to punishment for breach of indentures.

pprenticeship ystem and dustrial schools.

*Q.* 46. My special experience in training of apprentices has been gained in my own engineering foundry and workshops, and in several workshops with which I have been associated.

*Q.* 47 and 48. I have no intimate knowledge of the working of industrial schools and I know of no way in which they could be co-ordinated (*i. e.*, apprenticeship system and industrial schools).

There is a wide difference between the two methods of training. The apprenticeship system is entirely a business proposition. Boys are invited to become apprentices for a fixed term of years on a progressive rate of pay, and in addition to being paid for their labour, they are taught the particular trade to which they are indentured. Treated as all other labourers, they learn punctuality, attentiveness and obedience. Staying away from work and late attendance is punished by pay deductions. Laziness, indifference and incompetence means dismissal. As a business proposition the apprenticeship system must be a source of profit to an employer, otherwise it would fail.

The question of providing facilities for technical instruction, night classes and so forth, by employers of labour will depend on whether such facilities will be fully appreciated and whether such instruction will increase efficiency in their workshops.

Now with regard to industrial schools—as the primary object of such institutions is not to make a profit, work done under such conditions would be unremunerative under keen business competition. Time and labour saving are of the most vital importance in any industrial enterprise, the indentured apprentice is compelled by his employers to do things in a way that will bring profit to the firm. The production of an industrial school may be very excellent, but time and labour saving are secondary considerations and consequently the pupils in industrial schools cannot have the same conception of time and labour saving, as the indentured apprentice in a money-making concern.

*Q.* 49. I cannot give any opinion as to how day schools for short-time employees should be developed; with regard to night schools I will make reference to them later.

*Q.* 50. Probably industrial and technical schools might benefit by being controlled by a Department of Industries. I see no advantages in joint control. The Board of Education may concern itself with literary matters and let a Board of Industries look after industrial and technical schools.

ing of super- and technical

*Q.* 51. There is only one way of training men to take supervisor's and skilled manager's posts, and that is by starting at the bottom of the ladder as an apprentice and thus gain workshop experience, and manual skill in the best of all schools.

Whether an apprentice engineer is intended for a better position than that of a skilled workman or not should make no difference to the treatment he receives in the shops, he must work the same number of hours and do the same manual labour as his fellow apprentices. Three years of work in the shops followed by two terms of six months each in a technical college sandwiched between the last two years of apprenticeship in this way :—

Three years as a fitter or turner, 6 months in a technical college, 6 months in the works or drawing office, 6 months in a technial college, finishing up with 6 months in the shops at erecting or more advanced work. Such a training ought to qualify a young man of fair ability for a junior post.

As an alternative night classes as an adjunct to the apprenticeship system have been found of great service in teaching mechanical drawing, mathematics and geometry.

*Q.* 52 and 53. These two questions are dealt with in the Note appended.

*Q.* 54 and 55. I have no criticisms to make, but suggest that uniformity in the standards of examinations should be adopted by local Governments and Administrations.

### 1.—*Financial Aid to Industrial Enterprises.*

1. I have had some experience in trying to raise capital for manufacturing purposes, more particularly of late for establishing a factory for making power looms.

I found that although in most instances the possibilities of success were acknowledged and although the capitalists approached were associated with cotton spinning in Bombay, their attitude was not encouraging, but rather shy of investing money in an undertaking new to them. Capital.

In view of the great demand there is at present for looms, and the difficulty under War conditions of getting new looms from Lancashire manufacturers, it is difficult to understand why millowners particularly should be indifferent to such a proposal.

It is impossible to make any suggestion for removing the difficulties in raising capital for industrial purposes, one can only express opinions as to the cause. It is likewise impossible to divert a capitalist's investments from one channel to another by arguments that do not carry conviction.

An industry like loom-making ought to be independent of money grants-in-aid, bounties or subsidies, and yet I suppose loom-making will not be started by purely private enterprise. A leading capitalist's lead will always be followed by others. Possibly, had I been able to induce a leading capitalist to father a scheme of this kind, the required capital would have been forthcoming.

In a case of this kind probably some measure of Government assistance or support might induce the investing public to subscribe, but until it is tried it is difficult to form any accurate opinion as to whether Government support would remove the difficulty of raising capital for industrial purposes.

5. All methods of Government aid mentioned in the schedule might be applied to existing or new industries, the method or methods of giving aid would depend on the nature and conditions under which an industry is worked. Government assistance.

6. I am not in favour of Government control or supervision in any case, but in every case where Government aid is given the books and accounts should of course be subject to audit by a Government servant or nominee.

*Note on the system of Indentured Apprentices.*

The scope of the Commission on industrial development, although embracing the considerations of the training of artisans, seems to me to invite criticisms and suggestions more in regard to the training of supervisors or managers, and to technical and scientific departments than to the means of improving the class of skilled labour. Now we must learn to walk before we run. My contention is that the most pressing necessity at the present time is the training of artisans. The output of our technical colleges and schools, and young Indians with Home training, can have little scope for the exercise of their technical skill or administrative abilities in industry in the absence of a reasonable supply of capable skilled labourers.

In considering the question of the training of artisans in India the temperament, social habits and customs of the people must be kept in view. Unfortunately, the dignity of labour has no meaning either to the well educated or to the illiterate. Boys of good education are not attracted by the prospects of an industrial career, particularly if it necessitates a training in any form of manual labour, from the "skilled" labouring classes. We must look for apprentices to boys whose fathers are working men.

The extension of facilities for the training of workmen is absolutely necessary and I think the following is a workable proposition.

Workshops should be erected in suitable centres for the manufacture and sale of certain commodities absolutely essential to the development of industry, and which are now generally imported from abroad.

The primary object of such workshops would be the training of workmen. Other advantages would be rendering the country to some extent independent of foreign supplies and demonstrating the possibility of industrial extension in this particular line.

Here are a few articles I suggest manufacturing :—Pumps of different kinds, water cocks and draw taps, scales and weights, bench vices, carpenter's, engineer's, and blacksmith's tools, carriage and cart axles, agricultural implements, hand and foot grinders, foot lathes, sugarcane crushing rolls, rice hullers, milling plant; machine tools, such as lathes, drilling machines, hand and power looms and gins, oil engines, irrigation and well boring plant. I do not propose that any particular workshop should manufacture the whole of the articles in the above list, or intend the list to be complete, but I am quite sure that most if not all of them can be manufactured profitably in this country under capable direction and supervision. I do not suggest that an enterprise of this nature should be worked by any Government Department, but I will indicate the direction in which Government aid would help it forward.

In the first place Government must introduce the scheme, issue a prospectus setting forth its objects and advantages, and invite capitalists to subscribe—following the usual procedure in the formation of a Joint Stock Company, and guaranteeing interest on capital for a fixed term of years. Unless Government take the initiative I do not think there is any chance of native capitalists coming forward.

Assuming that sufficient capital is subscribed under Government guarantee regarding interest, a Board of Directors may be appointed by the shareholders, and the affairs of the Company placed under their direction. Further Government help would only relate to concessions in the matter of land, or building leases.

The books of the Company would of course be subject to audit by Government nominee, otherwise I do not propose any direct Government control. With regard to Government assistance to any such Company as a going concern, I think there is ample scope for encouraging native industry by giving preference to the manufactures of the country, without competing with existing or discouraging fresh private enterprise. The fact that a start must be made in industrial development must be the first consideration of competition with established external trade or fear of discouraging private enterprise may be put on one side; if industrial expansion is to be left to private enterprise then we will be just as we are for many years to come.

The Company being under certain obligations to Government would of course have to adopt certain Government regulations regarding the training of workmen. A fixed number of apprentices must always be employed, and adequate arrangements provided for instruction classes either during working hours or after.

As the primary object is the training of workmen this result can only be obtained by employing skilled artisans to teach them, men familiar with the most up-to-date practice in Mechanical Engineering and its branches. Government must have the right of insisting that a competent staff of foremen be always employed; with the composition of the staff rests the whole question of the success of the scheme as a training ground for apprentices. This is the only way in which Government "interference" might be resented, but I am afraid a policy of drift might be established if Government did not control the policy of the Directors in this particular matter.

Another proposal I wish to lay before the Commission in connection with the training of apprentices is that Government grants be given to selected private Engineering firms for establishing instruction classes in their works for the benefit of their apprentices. Unless Government does so, private firms are not likely to make any move in this direction, and it is a matter for consideration whether or not grants to industrial schools might not be profitably diverted and utilised in this way.

ORAL EVIDENCE, 15TH NOVEMBER 1917.

*Mr. G. A. Thomas.*—*Q.* In answer to question 44 (*a*) you say, "The lack of primary education hinders industrial development." Do you suggest that primary education should be made free and compulsory?—*A.* Undoubtedly.

*Q.* In industrial centres or universally?—*A.* In industrial centres.

*Q.* Then you say, "I am of opinion that the labourer's efficiency could be improved if their standard of living as regards housing accommodation in sanitary surroundings was made possible". Have you any concrete suggestions to make as regards improving their standard of living?—*A.* Only with regard to their housing and sanitary surroundings.

*Q.* How is it to be brought about; do you suggest that some owners should be compelled to house their employees by legislation?—*A.* Yes.

*Q.* Then you would require every big employer of labour to provide sanitary surroundings and accommodation for his employees?—*A.* A reasonable amount of accommodation. A newly started mill could not be expected to have complete housing arrangements made for their employees.

*Q.* But you would make use of legislation to insist upon a certain percentage?—*A.* Yes.

*Q.* Referring to the apprenticeship system, as far as you know, has the Indian Apprentices Act been made use of in Bombay?—*A.* I have never heard of the Act.

*Q.* An Act does exist, made about 60 or 70 years ago. It is not put into practice?—*A.* I don't think it is put in practice in any workshop in Bombay.

*Q.* Is there any Act existent in England in regard to apprentices?—*A.* Yes, the old Apprentices Act, by which a man is liable to damages if an apprentice leaves before his time.

*Q.* As regards these apprentices you say, "The principal training shops for skilled workmen in the engineering trade are those of the railway companies, but the railway companies absorb all or most of the workmen they train." Do you think it possible that large mechanical engineering concerns and others would train up apprentices for smaller concerns, in addition to those they require for their own purposes?—*A.* Not in the ordinary course of events. If hey train a large number of apprentices, the apprentices at the end of the term are bound o spread and leave their original employers. The same thing holds in all apprenticeship ystems. In England, firms who train apprentices don't expect that all of them are going to tay with them forever; only during the term of their apprenticeship. These apprentices, vhen their term has expired, are free to go anywhere.

*Q*. At present these large firms do train up a certain number of men?—*A*. Quite so, ut they require them. The large railway shops require so many men, and the supply of men s so small, that they always have room for their own apprentices.

*Q*. As regards the training of the apprentices in the shops, do you suggest that the foreman, pon whom the task of training them would fall, should themselves be trained in imparting nstruction? Should they go to a training school?—*A*. Not at all. They should be trained n the actual manipulation of tools.

*Q*. I mean should the foremen who trained the apprentices themselves be trained in the rt of teaching?—*A*. Not necessarily.

*Q*. You don't think that an institution for training such foremen would be useful?—*A*. No, I do not.

*Q*. In your note on the system of indentured apprentices, you say, "My contention is that the most pressing necessity at the present time is the training of artisans." Then a little later on you say, "The primary object of such workshops would be the training of workmen." How long would such training take?—*A*. Five years; that is, if you are not training the men for superior posts, but purely as artisans. You must necessarily in such an extended system of apprenticeship have two classes of apprentices, one class who would ultimately become overseers and managers. A three years' course of manual training is quite sufficient, provided they put in another two years in a college or technical school. On the other hand if the apprentices are going in simply for a workman's training, then five years is necessary.

*Q*. Would you have both classes trained in the same workshop?—*A*. Yes, and under the same rules and conditions.

*Q*. You contemplate a continuous stream of workmen passing through this workshop, and as soon as they attain efficiency they pass out and find employment elsewhere?—*A*. Yes.

*Q*. There would be no staff of trained workmen?—*A*. You would have to have a permanent staff, of course; a fairly large staff of skilled men to train those apprentices.

*Q*. Then the quality of work turned out would not be as good as that turned out in the shops that had skilled workmen?—*A*. No.

*Q*. Then it could hardly be run economically?—*A*. I think it could.

*Q*. Would it be self-supporting?—*A*. I think it would be. I don't mean to go in for any high class work.

*Q*. You propose to cover a good deal of ground as regards the articles you suggest manufacturing. Could oil engines and well-boring plant be turned out by these apprentice workmen under skilled supervision?—*A*. An apprentice in his third or fourth year of training, if there is anything in him at all, is really a practically skilled workman. To begin with you must have a certain percentage of permanent staff. You cannot start with raw boys; that must necessarily be. As these boys get to know a little more about the training of an engineer, or whatever particular branch they were training for, then the permanent staff may be reduced.

*Q*. But you would always keep some permanent staff as a sort of stiffening?—*A*. Yes; for instance, blacksmiths. You must have permanent men for a shop like that.

*Q*. Then the men who would be giving the instruction in these special workshops; would they not themselves have to receive special training?—*A*. No, that is not the class of men that is required. Highly skilled mechanics or moulders would be in charge of the training of these apprentices, and I would draw these men from existing factories.

*Q*. In the last paragraph of your evidence you say, "Another proposal is that Government grants be given to selected private engineering firms for establishing instruction classes in their works for the benefit of their apprentices." Is that for the benefit of their own apprentices?—*A*. Yes.

*Q*. Then why should Government give this financial assistance for improving the efficiency of their own apprentices, from which they themselves would benefit?—*A*. I take it that Government intend to do something in the way of helping, and the extension of facilities for the training of apprentices and artisans would be a form of help.

*Q*. My point is that if a firm employs a large number of apprentices, it is to their own interests to improve their efficiency, since they themselves would benefit. Why should they ask for Government assistance?—*A*. If this point that I brought out about an Act being put into force to compel apprentices to stick to their indentures was obtained, then probably engineering firms would benefit by this sort of thing; but if they had also to train their apprentices in manual labour and establish night classes or day classes in their works, and have no redress if their apprentices run away, which under existing circumstances they do, then I don't see that private firms are likely to get any benefit by so doing.

*Q.* If you had these instruction classes you would allow apprentices from other workshops to come?—*A.* Yes, if it was a Government supported school.

*Q.* You think Government would spend their money better if they gave grants to these instruction classes than to the industrial schools? *A.* Yes; I don't know much about industrial schools, but I think the old fashioned system of apprenticeship is better from what I gather than the method of work in industrial schools.

*Q.* Would you suggest that these instruction classes should take the place of institutions like the Victoria Jubilee Technical Institute?—*A.* Oh, not at all; it is quite a different thing.

*Sir D. J. Tata.*—*Q.* With reference to the point in the last paragraph, about the establishment of instruction classes, for which Government grants should be given, how are Government to know that the apprentices have received any benefit from these classes? The Government may give these grants, and not know whether there is anything resulting from them.—*A.* These classes would be open to Government inspection.

*Q.* What I wish to know is, wouldn't it be better to have grants by results, *i.e.*, in the case of a school the Government grant would be given for the number of apprentices who satisfy a certain test? They would then be paid according to the number of students they turn out as satisfactory. Would that not be better?—*A.* Yes, that is quite a feasible scheme.

*Q.* Like the grant given to schools where the Government give them so much for each student passing. Would that not be better?—*A.* Yes, I think so.

*Q.* You suggest that certain articles can be made locally. I suppose these are the things you allude to in the third paragraph of your statement?—*A.* Yes, a few of them.

*Q.* Who is to teach the men to make them; there must be specialists?—*A.* Yes.

*Q.* For instance, no ordinary mechanic could make a pump, unless he was a man trained up in the works where pumps are made?—*A.* You can buy a dozen different kinds of pumps in the bazaar and give them to your apprentice to copy and make. There is nothing special about them. I only mean hand-pumps of a simple type.

*Q.* You think that experience in building these machines will be useful to them in working them later on?—*A.* No, it gives them a training in using their hands; a sort of manual training; and also a training in lathes and other machine tools.

*Q.* You say that apprenticeship is a better system than industrial schools. I presume it is because there you have the atmosphere of actual working conditions; is that the idea?—*A.* Yes, that is so, because it is a business proposal.

*Q.* Going back to the first question which Mr. Thomas asked you about chawls and the condition of the work-people, is that all you can think of in connection with improving the condition of labourers at present?—*A.* That is really all that I can think of; the hours of labour might be made shorter with advantage.

*Q.* How would that help?—*A.* Give them more time at home for one thing.

*Q.* About stamina; is that not due to the food that they eat? And should not some attempt be made to give them better food, so as to improve their stamina? Would that not be part of the work that you would undertake? *A.* What kind of food would you suggest? They are hedged round with caste restrictions. The Bombay labourer lives fairly well, as far as food goes.

*Q.* Why then is his stamina inferior?—*A.* It is because he is living in most insanitary surroundings.

*Q.* Then if healthy chawls were built, who is to guarantee that the workmen would come and live there?—*A.* I know myself that in many cases they will not live there.

*Q.* So, if some millowner built chawls do you think they would succeed in getting them filled?—*A.* I don't know about getting them filled; they would get a fairly large percentage of them probably filled. I think it has been the experience of certain millowners, who have built chawls, that there is a difficulty in getting them filled.

*Q.* What is the reason; have you any idea?—*A.* I don't know, except that they have no desire to better their conditions of life.

*Q.* Then the main thing is to try and make them ambitious?—*A.* That is a very laudable idea.

*Q.* Just as it was said of the French Army under Napoleon that every drummer boy carried a marshal's baton in his knapsack, do you not want every labourer to be ambitious to become a millowner ?—*A*. I am afraid that is beyond the region of possibilities ; ambition of any sort is foreign to him.

*Q*. The whole thing is that there is a want of ambition, and that is due to a want of education. So we come down to bedrock there ?—*A*. Yes.

*Q*. Later on you say, " Privately owned or joint stock engineering concerns have a great difficulty in following out a strict apprenticeship system." Why should it be so difficult, if the engineering firms or joint stock companies wanted really to create a class of apprentices who would be useful to them ? Why cannot such a concern succeed in getting those men trained ?—*A*. These boys who come—I am talking from personal experience you get these boys as apprentices and perhaps the father comes to vouch for their staying for a certain length of time in your place—these boys get to know a smattering of their business, whatever it may be, and they get enticed away by other petty firms in Bombay, who offer them an anna or two more than they are getting from you. They run away and you have no redress. You have been teaching those boys ; they have really been of no benefit to you ; they run away and pass off for full-fledged fitters or turners. They get more pay, probably stay with their new employer for a short time and then go somewhere else. You get thoroughly disheartened by trying to teach boys their trade.

*Q*. Would you be surprised to learn that in our mills we train all our men and they stick to us through thick and thin ? We have had men for over 25 years. If we are able to train apprentices why should not other firms be able to do so ?—*A*. Probably you get a better class of apprentices.

*Q*. Are the engineering trades equally anxious to teach them as we are ?—*A*. They are as anxious to get apprentices to teach and turn into good workmen.

*Q*. Do you lay out any hopes of their getting on better and assuming positions of trust and importance ?—*A*. No, that is not the class of apprentices I am talking about at all. Your men are of quite a different stamp. The apprentices you are talking about in your mills are probably Parsees. I am talking about the coolie classes of Hindus and Mahomedans who go into the different foundries in Bombay to learn a trade, not with the view of getting to high positions ; that is quite another class of men who come probably from the technical schools.

*Q*. Not necessarily ; our men in the old days commenced on Rs. 10 a month. Now I think they start on Rs. 15, but they have hopes of holding positions such as that of carding master, spinning and weaving master, etc.—*A*. Your point is that if engineering firms offered their boys some inducement, such as that of foremen's job, then they would stay ?

*Q*. Yes, it is because they feel that their services are not appreciated, they naturally don't stay.—*A*. I cannot agree with you there. They leave long before they are trained in their business. They don't go to any place where there is any inducement of that sort held out to them ; they go if they get an anna more.

*Q*. In the railway workshops you say they always have room for their apprentices ; they are able to keep them. Why is that ?—*A*. They also have a better system of apprenticeship. I think they bind them under some penalty, whatever that may be, for a certain term.

*Q*. You said something about not wanting foremen to be specially trained to teach. It is not every man that can teach. A man might be a very able workman but still not able to teach and impart knowledge to others ?—*A*. I only referred to mechanical skilled labour. When a man can do a certain thing himself, I don't see why he should be unable to impart it to others. The only way that he can do it is to show the apprentice how it can be done.

*Q*. In answer to Question 46 you say, " My special experience in the training of apprentices has been gained in my own engineering foundry and workshops and in several workshops with which I have been associated." What class of apprentices were these Indian apprentices ? Were they of the workman class whom you simply want to train as artisans, with no hopes of becoming foremen ?—*A*. No hopes have been held out to them ; I have never told them that if they behave themselves they would become foremen.

*Q*. You don't think that that has anything to do with their staying ?—*A*. Nothing whatever ; they simply go where they are offered more money.

*Hon'ble Sir Fazulbhoy Currimbhoy*.—*Q*. You say that you tried to raise capital for manufacturing purposes, more particularly for making power looms, but met with no success. Have you tried to get the capital in Bombay ?—*A*. Oh, yes.

*Q*. And to start the work where ? In Bombay ?—*A*. Yes.

*Q*. Do you think Bombay is a better place than Calcutta for loom making ?—*A*. I cannot tell you about Calcutta, as I have not had much experience of the place.

*Q*. Where do you get your iron and steel from ?—*A*. At present the thing is on a different footing. We get it just as other foundries get their iron and steel here.

*Q.* You want to start this factory on account of the war being on at present, so that looms may be obtained here ?—*A.* I was referring to nearly a year ago, or perhaps two years ago, when the difficulties of getting steel and iron from England were not so great as they are now.

*Q.* Then you can get the looms, too, from England ?—*A.* That is hardly the point. In starting the loom factory it was not the question of whether we could get the materials or not; it was whether we could get the capital to start such a concern.

*Q.* Had you issued a prospectus and showed how you could make a profit ?—*A.* No, only a rough draft.

*Q.* Don't you think that if a prospectus were brought out, showing that the scheme would make so much profit, and that the business would be located in such a place where you could get the steel, it would have succeeded ? Supposing you started the industry of loom-making in the same place as the Tata Works ; don't you think that capital could be had very easily ?—*A.* I really am not in a position to tell you. I can only tell you that I put the matter before several very well known capitalists and influential men in Bombay, and did not meet with success.

*Q.* Do you know anything about the Colaba mill-hand chawls ?—*A.* Yes.

*Q.* Are these chawls occupied by your own labourers or mostly by outsiders ?—*A.* Mostly by mill labourers.

*Mr. C. E. Low.*—*Q.* In your written evidence you say, under head 3, " In established industries, such as cotton spinning and weaving, mill-owners cannot get skilled mechanics to attend to and keep their machinery up to the mark." What is that statement based on ?—*A.* Based on my experience.

*Q.* Is that a generally admitted fact amongst millowners in Bombay ?—*A.* Among the millowners and mill agents I have come across they seem to be of the same opinion that there is very great difficulty in getting skilled mechanics to look after machinery.

*Q.* Where does the effect of it come in. Is there any point where you can get up against it statistically ?—*A.* An unusual number of breakages in machinery, owing to defective parts which these men called jobbers put together in the mills ; badly running machines of all sorts, especially in a loom shed result in bad work and loss in production.

*Q.* That class of work, putting together and putting in replacements, etc., is distinctly on a worse basis here than in England ?—*A.* Most decidedly.

*Q.* Is there much difference between mill and mill in Bombay in that respect ?—*A.* In some mills they may have a better class of men than in others with better production ; in some mills the men who look after replacements are more competent than those in other mills.

*Q.* They employ a larger percentage of skilled supervision ; certain mills do that ?—*A.* Yes.

*Q.* With reference to your answer to Question 44 (*a*), have you noticed whether any particular classes or castes take to the job of being fitters ?—*A.* They are mostly all Mahrattas.

*Q.* Mahomedans ?—*A.* No. You are referring to the mill fitters, fitters in cotton mills ? They are mostly all Mahrattas. There is a certain class of men who call themselves fitters, who have had no training. They have simply been inside a mill, putting on wheels, etc. These men have had no proper training as fitters.

*Q.* Do you get another class of men who have been fitters in shops and take up mill fitting as a specialty ?—*A.* You get men trained in mechanic shops in the mills.

*Q.* Men from railway workshops ?—*A.* You don't get them from the railways, that is, not the inside fitter who assembles broken parts, etc.

*Q.* The man who has come out of any engineering shop here, is he usually a Mahratta, too ?—*A.* No, we get all sorts. We get Mahomedans, Jews, Christians, etc.

*Q.* You speak of the British apprenticeship system in the engineering trade. Do you know whether there is any statutory basis at the back of it, or is it a mere contract between the boy's father or guardian and the firm in which the boy's father or guardian stands surety ; simply a civil contract ?—*A.* Yes.

*Q.* You consider that would not be sufficient here ?—*A.* Well, I don't know.

*Q.* I speak with this much experience of that kind of thing, that in various forms of Government training we ask the guardian to enter into a bond that the boy will stay a certain length of time. When it comes to the point of enforcing the bond we seldom do it ; it is not good enough, but it does exercise a certain amount of moral pressure to keep the fellow there.—*A.* Probably in that case the parents of the boys are of better standing ; they understand the meaning of a bond ; but with regard to the poorer working classes in Bombay, they don't understand anything about a bond.

*Q*. Supposing you had a statute to back you; what form would that take; do you think that the employer should have the power to pursue and seize? to call the police in?—*A*. No, I don't think it necessary to have anything very drastic in the matter; but you must have some hold over these boys, if you are going to spend money over them for which you hope to get a return. When that doesn't come off you get rather disheartened in the training of apprentices.

*Q*. The only difficulty I am in is, precisely what kind of action one should take; would you take action against his other employers?—*A*. Certainly, that is one of my points.

*Q*. Suppose the other employer continues to employ him, you could take action against him; and in the case of the boy himself a small fine would serve the purpose?—*A*. Yes.

*Q*. You say, "The principal training shops for skilled workmen in the engineering trade are those of the railway companies, but the railway companies absorb all or most of the workmen they train." Is it simply because they happen to be the biggest employers of mechanical engineers; or is it anything special?—*A*. No, certainly because they employ such a large number of people.

*Q*. In regard to Questions 47 and 48 have you had any experience of youths from the Victoria Jubilee Technical Institute?—*A*. Not very much. I have had only one or two young men as draughtsmen, and perhaps in some other particular branches; but I have not had much experience.

*Q*. Draughtsmanship is one thing and engineering is another. You have not had sufficient experience of them as engineers?—*A*. No, not in that capacity.

*Q*. The main difficulty is whether a man of the educated class will take up a practical course before his theoretical training.—*A*. I am afraid he won't.

*Q*. Can you cite any instances to the contrary, which may lead you to think there may be exceptions?—*A*. No, I have not found any young man of really decent education, who is out to get a lift above that of a workman, *viz*., as a supervisor or manager. He is not inclined to dirty his hands and do manual work.

*Q*. You think that they will go through the amount of practical work which they are putting in at the Victoria Jubilee Technical Institute, but not real hard work in a menial capacity?—*A*. No, they will not do that; that is my experience.

*Q*. You speak of night classes. Are there any night classes in Bombay at present?—*A*. Not that I know of.

*Q*. This question of your attempting to get capital raised for power looms; is there any particular reason why these people were shy of it, except because it was a new thing?—*A*. I cannot conceive any other reason. They admit the scheme was very feasible, and all said they were terribly short of looms in India.

*Hon'ble Sir R. N. Mookerjee*.—*Q*. In answer to Mr. Low you said that you did not think educated Indians would go into a workshop and do practical training. Can you cite any particular case?—*A*. I am only talking from what experience I have had. I have had a good deal to do with cotton mill mechanic shops, and have had, from time to time, young men coming into the shops, of good education, who ultimately intended to pass the Boiler Act Examination, and become full-fledged engineers. They come into the mechanic shops through certain influence to get a training, and I know in every case I have found those young men quite averse to dirtying their hands or going in for manual labour of any kind. They will get a coolie to take up a tool for them.

*Q*. Your experience is confined to Bombay only?—*A*. Principally to Bombay.

*Q*. In Bengal there are boys who are doing that work now, although their training is not so good, owing to the lack of proper workshop training.—*A*. I am afraid I cannot say the same for Bombay.

*Sir D. J. Tata*.—*Q*. How many mills are there in Bombay? About 80?—*A*. Yes.

*Q*. The engineers of these mills are all Indians, more or less, or a large proportion of them?—*A*. Yes.

*Q*. I believe they are doing their work fairly satisfactorily?—*A*. Yes.

*Q*. Why then do you say they are not men to dirty their hands; they must have gone through this in their previous training?—*A*. I said my experience was of young men whom I had seen come into the mill mechanic shop, with the view of getting a slight training before going up for their engineer's certificate, and that they were very averse to dirtying their hands in any way. I was not talking about the men who are engineers at the mills. I said these were quite boys who were learning as apprentices.

*Q*. But these others must have gone through that?—*A*. Not necessarily.

*Q.* How then could they have become engineers ?—*A.* They may have put in a full apprenticeship in railways and other firms in Bombay.

*Hon'ble Sir R. N. Mookerjee.*—*Q.* If these apprentices want regular training, they should be trained in a commercial concern ?—*A.* That is one of my points, where the value of time comes into it.

*Q.* But if the Government starts a workshop, it ceases to be a commercial concern ?—*A.* I also think that a concern run on the lines I suggest would certainly not be a very profitable concern ; but I think in time it would pay its way.

*Q.* Your idea is that the Government will help some companies to start a sort of workshop. Do you think companies would come forward to start workshops on such conditions ? If it is profitable, and Government gives any help in the way of monthly subscriptions to some particular selected firms, other firms who are already existing would be clamouring for such help from Government.—*A.* I don't think so.

*Q.* We all agree that practical training in a commercial concern is the best thing to be had ; at the same time we also admit that these men must go in for practical training for three years, and the last two years they come to college for their drawing and mathematics. To do that we want two things, either a technical institute or a technological college ; and secondly, a well equipped workshop. No private concern will have a college established, and therefore the Government must found an institute or a college where a workshop is also situated and available for training.—*A.* Yes. In the case of Bombay they have got a technical institute.

*Q.* There are four railway workshops in India who are wanting men, and who say they have no means of educating these students, therefore they must have a school set up by Government. It comes to this that unless Government establish colleges or technical institutes in places like Kanchrapara or Jamalpore, there is no other suitable means of imparting such education ?—*A.* No, except in the case of railway workshops. I was more particularly referring to Bombay. Supposing you had a workshop of this class purely for training artisans. You have the technical institute. Supposing a certain percentage of Indian apprentices wanted to go in for better training, after doing three years of mechanical training, you have the technical institute.

*Q.* In Bombay you have got that ; but there are two different classes of apprentices.—*A.* There must be two different classes.

*Q.* In a railway workshop the training is more or less limited to railway works ; whereas if they were trained in a large commercial workshop like that of Burn & Co., where they learn all kinds of works, these boys become competent. As for any class of mechanical engineering works you suggest even if Government give financial help to private firms, they will not be able to take more than a limited number of apprentices without interfering with their own work. We want a large number of students to be trained ; how are we going to do that ?—*A.* That is the only suggestion I could think of by way of getting trained workmen, *viz.*, to start workshops on a business line. That is not the same thing as an industrial school or anything of that sort.

*Q.* You have not quite understood me as to how we are to cope with this difficulty. Burn & Co. will not able to take more than a limited number of apprentices as a large number will interfere with their ordinary work.—*A.* Which class of apprentice do you refer to ? The purely artisan class ? If so, the artisan class would not interfere.

*Q.* I mean the educated class and I see this difficulty. You have nothing else to suggest.—*A.* No.

*Mr. A. Chatterton.*—*Q.* Is there any kind of trade unionism among the mechanics and fitters in Bombay ?—*A.* No, not at all.

*Q.* Have you any experience of the English system of training boys in the workshops ?—*A.* Yes, I have been an apprentice engineer myself.

*Q.* What is usual at the present time ? Dealing first of all with the artisan classes, do they sign indentures now ?—*A.* Oh yes, they still go in for indentures.

*Q.* For instance, in a railway workshop are boys taken in on indenture ?—*A.* I don't know about railway workshops, but in general engineering shops they still have to sign indentures.

*Q.* During the period of the indenture are the civil rights of the apprentices affected in any way ?—*A.* They are supposed to be, but as a matter of fact there is no interference with the civil rights. In my indenture I had to be home at a certain hour at night, I was not allowed to do this, that and the other ; had to go to church, etc., but all this was not taken notice of.

*Q.* You were not allowed to marry during the period of such indentureship ?—*A.* No.

*Q.* For how long a period do the indentures run ?—*A.* Five years.

*Q.* In regard to the difficulty about training apprentices out here; at what age do you hink a boy should start in an engineering shop?—*A.* Here in Bombay, where there is not nuch in the way of schooling, probably he could start at the age of 12. They start very much ounger here than in England, where they commence between 15 and 16.

*Q.* At 12 would a boy be strong enough?—*A.* Not till he had been at work for a ouple of years.

*Q.* Supposing we instituted in India a system of apprenticeship for seven years, starting t 14 and ending at 21, and we adopted some of the expedients you mention in your written tatement to prevent the apprentice running away, would private firms be more ready to take pprentices?—*A.* I think so, undoubtedly.

*Q.* They would then teach them a trade and have a hold on them for a certain period?—*A.* That is rather a long period, seven years.

*Q.* Was not seven years the old English custom? *A.* No, five years.

*Q.* Yes, but in India they will not learn their work as quickly as they do at home, and ou want special inducements to get someone to train them. It is necessary to make the eriod a rather long one.—*A.* If you can get them for seven years, by all means; but it eems perhaps rather too much that these boys should go on apprentice's pay for seven years.

*Q.* The pay would be a gradually increasing one. We have to face the question that mployers will not train the men unless they get a *quid pro quo.* The *quid pro quo* is the service f the apprentice after he has been trained for some time.—*A.* It is rather too much to ask.

*Q.* You say you are not in favour of industrial schools as a method of training artisans?—*A.* No.

*Q.* You propose instead a Government factory for the manufacture of certain classes f goods, which is almost identical with certain industrial schools I know of. Don't you think hat most of the defects which are common in industrial schools will almost at once spring p in such a factory?—*A.* Not if it is run under my scheme. It is going to be run on a ommercial scale.

*Q.* In a factory working under normal condition how many workmen would you have o each apprentice?—*A.* I should say about 15 apprentices to 100 workmen.

*Q.* That is to say you are going to have a rather big establishment?—*A.* If you are eferring to this scheme of mine; that is quite another story. It would be principally apprentices. There would be a few skilled workmen there to stiffen the concern, so to speak. Of ourse the majority would be apprentices. The bulk of the boys would be all apprentices. It must have, to start with, a few skilled workmen, in addition to the skilled men that we would equire from home, in order to train these men, not teachers but skilled workmen. I thought ou were referring to an ordinary engineering works. In the latter there are about 15 per cent. f apprentices.

*Q.* Coming back to the question of the training of supervisors and managers, you think the only way is to pass them through the workshops as workmen; at the same time you told Mr. Low that none of them would do it. Is there no other alternative then?—*A.* No other lternative except a technical school.

*Q.* Do you think it is practicable to turn out good mechanical engineers by letting them go through their technical course before they take up the workshop course?—*A.* No, I don't think so.

*Q.* Don't a good many of them do so in England?—*A.* Oh, no; I have not heard so.

*Q.* What about those engineering colleges at Leeds, etc.?—*A.* They all put in their apprenticeship in the shops before they go to college.

*Q.* Do not many boys go straight from school to college? Most boys leave school in England from 16 to 18.—*A.* Sixteen is a good age. He goes into the shops, puts in three years, and if he is intended for a better position than that of an actual workman he gets the advantage, if they have a technical college. They sandwich the time between the university and the drawing office and put in their five or six years. He does not go to college and then return to the workshops to do apprentice's work. He puts in three years in the shops at, say, 19. He then puts in three years at college, combined with the drawing office which completes his training and apprenticeship.

***President.***—*Q.* I don't think you are quite correct in answering Mr. Chatterton's question about the practice at home, because there are numbers of students who go straight from school to Universities like Manchester and Leeds, and take degrees in engineering, and after that they get a certain amount of practical training and experience before they take up posts like engineers to municipalities and Public Works Offices.—*A.* I don't think they go in for apprentice work. They don't start at the bottom of the tree in shops.

*Mr. A. Chatterton.*—*Q.* You would take boys out of school at 16 and put them in a workshop for three years and let them pick up their theoretical and technical knowledge more or less by chance. You make the main thing the workshop course ?—*A.* No, I make two classes of apprentices.

*Q.* I am dealing with the second class.—*A.* It would not be by chance; in regard to the other part of the training I refer to boys who had facilities, such as the Technical Institute in Bombay to complete their training.

*Q.* If you want a first class mechanical engineer here, you must start with a well educated individual. Would the majority of boys at 16 in this country have received sufficient education to enable them to hold their own opinions ?—*A.* By no means.

*Q.* You propose to make a break of three years in his studies, and he would have to start almost *de novo* when he goes to the technical school or college ?—*A.* Yes, but what alternative is there. You must get those apprentices; you must train those boys. There is no use in putting it off to nineteen years.

*Q.* The point I want you to consider is whether the treatment that the boy gets after he has been through the college course where he has picked up a considerable amount of theoretical knowledge is satisfactory. Would it not be possible in the workshop to give him that training that he needs without completely upsetting the whole course of his life in the way that is now done ?—*A.* Don't you think to begin with that it would be better to start the other way about ? Would it not be more likely to fall in with the methods of working if he started before he went to college ?

*Q.* But you say yourself he won't ?—*A.* If he won't before he goes to college, he certainly won't afterwards. Your idea is to have some sort of lightened labour ?

*Q.* For instance, if you were to put better instructors in the workshop to deal with him, that would get over a good deal of difficulty.—*A.* I am afraid I have never come across such apprentices in India, and cannot therefore answer your question.

*Q.* As regards getting enough apprentices in workshops, you say you have no experience of industrial schools, but assuming as a fact that the cost on an average is Rs. 30 a month to train these workmen, would it not be practicable to do most of this training in existing engineering shops, if Government were to subsidize them to that extent, Rs. 30 for each pupil ?—*A.* I hardly think subsidizing necessary, if we could get a better apprenticeship system in India. I don't think employers would jib at taking in apprentices in any way, but the thing is so uncertain and unsatisfactory in every way. I happen to be the manager of a large engineering works in Bombay and we have not got three apprentices in the place.

*Q.* Are you looking for them ?—*A.* Yes, I have given instructions to look out for apprentices.

*Q.* There is a certain amount of money spent in industrial schools on giving a kind of training to boys to produce artisans. Assuming that the cost of the training is about Rs. 30 a month, and that it has to be paid by Government or the municipality or the District Board, would it not be better to spend that money in private workshops in improving the methods under which they are actually trained in workshops now ?—*A.* Undoubtedly, provided you don't make a separate class of these apprentices, but make them conform to the rules of the workshops.

*Q.* It will be desirable to give them a certain amount of time during workshop hours to acquire a knowledge of things which are not directly associated with the work of the shop; for instance you would have to teach them drawing ?—*A.* That means having a drawing office and an instructor, which I suppose this Rs. 30 would go to pay for. That is quite all right, and there is no objection to that, provided that those apprentices are not put on a different footing to other apprentices or other workmen, except giving them some instruction in drawing, or whatever it may be; geometry.

*Q.* Do you think employers of labour would receive apprentices nominated by Government, in that way, Government paying a small stipend to start with, or paying the workshop certain fees as *premia* ?—*A.* I think so. Personally I would be very pleased to fall in with the idea.

*Q.* You would take in apprentices of this class up to 15 per cent. of your establishment ?—*A.* Yes.

*Mr. C. E. Low.*—*Q.* I am very glad to hear you say that you will be ready to take in apprentices on those conditions, *i.e.*, with some assistance from Government towards doing what is not your business; but while in the shop they should be under shop conditions. Under somewhat different circumstances employers object very strongly, as a rule, to taking in fellows who had done their three or four years in an engineering college or institution towards their final year or year and a half of practical work.—*A.* I think if they come under the same rules as other people in the shops, that would be satisfactory.

*Q.* What do you think of the other idea ?—*A.* I don't like it myself.

*Q.* Do you think that would create difficulties in the shops ?—*A.* They would be a bit of a nuisance. They would not help you in any way, and it would do your business no good. They would be in the position of men scrutinising and looking and trying to put everything into their brains.

*Q.* Do you think they would be less useful to you and less teachable ?—*A.* I am afraid they would not stand being taught much. They think they have nothing to learn. They would not do much in the way of helping any private business concern. That is my opinion. Unless you could put one of these men into the works as an estimator or draughtsman. For actual skilled labour they are unsuited, and I don't see what use they would be to private concerns. My strong point is the training of apprentices. I have had this in my mind for a long time, and the desirability of having decent artisans in India, which we have not at the present time.

---

### WITNESS NO. 293.

Dr. S. M. Sane.

DR. S. M. SANE, B.Sc., B.A. (Allahabad), Ph.D. (Berlin), *Representative of Messrs. N. Powell & Co., Manufacturing Chemists, Bombay.*

### WRITTEN EVIDENCE.

Government patronage.

Common with other industries and manufactures, our own line of manufacture—surgical instruments and aseptic and other hospital furniture—needs a far greater share of Government patronage than has fallen to our lot hitherto. Never was this stimulating influence of Government patronage so keenly realized as during these last few years of war. Until before the war, all large orders for hospital fittings were usually placed outside India, and it was only occasionally that we supplied goods of our own manufacture to hospitals, mostly in the Bombay Presidency. As soon as the war broke out all things at once changed. Stores and fittings were difficult to obtain from abroad, and an attempt was made by responsible authorities to obtain the same class of goods manufactured in India. The result has been that during the last three and a half years we have fitted up more hospitals with goods manufactured by ourselves than we did during the period of fifteen years before the war. We have fitted up almost all the Indian War and Base Hospitals and Hospital ships with our aseptic hospital furniture and instruments, and have besides fitted up several hospitals in Mesopotamia, East Africa and Alexandria. The result has been remarkable. It has demonstrated to Government and to ourselves that we could supply at a short notice large quantities of material of this kind, and although the prices of material, *e.g.* glass, metal, etc., have increased in many cases by several hundred per cent., we have been able to supply to Government a large stock of goods manufactured from these at prices not very much higher than those that ruled before the war.

Stores rules.

Our own industry does not share this valuable profit in the shape of experience and study alone. Larger and smaller industries have all shared alike. Improvement of the quality of goods and more economic methods have been the direct result of this Government patronage. There is an old rule which requires all stores which are manufactured in India to be purchased locally, but I humbly suggest that this rule should be more honoured than has been the custom hitherto. A more consistent and generous policy as regards the purchase of stores will have very far-reaching consequences on industry in India. There is another point to which I would draw the attention of the Commission, *i.e.*, the activity of the Medical Stores Department. This department, as at present constituted in Bombay and other parts of India, is not merely a Government agency for purchasing stores for Medical Department. It is also a manufacturing department which supplies goods, not only to Government hospitals and dispensaries, but also to Native States and Municipalities. The reason alleged in support of the manufacture of some medicinal preparations is that Government can thus get articles which, if purchased in the market, would be subject to an excise duty. This argument need not be examined too closely. If Government pays an additional price for alcoholic preparation, it also receives an equivalent amount through its Excise Department. I do not think that the existence of this department in its present form is in the best interest of the industry affected by it. Government departments are not required to work necessarily on business or on the most economic lines, and maintenance of this department as a supplier to Government and occasionally to public cannot be regarded as very economical. I would suggest that Government should tender for all those articles which they at present manufacture in the Medical Stores Department in the open market, and thus give patronage to Indian manufacturers.

The Medical Stores Department also maintains, in Bombay at any rate, a workshop for the manufacture and repairs of surgical instruments and other hospital sundries. We are not sure whether Government could not get the same works done more cheaply in workshops and factories owned by private people, of which there are some in Bombay. I also suggest that this matter be investigated.

**Industrial and duty-free spirit**

A great many difficulties with which the industry of manufacturing medicinal preparations has to contend with are connected with the use of alcohol. There are several industries, in some of which we are interested, which use alcohol or rectified spirit in one or other form. All these industries come, roughly, under three large heads :—

(i) Those that use pure, *i.e.*, undenatured, spirit and manufacture articles liable to a spirit duty under excise law. This includes medicinal preparations.

(ii) Industries which use alcohol as a secondary material and, except in rare cases, may use rectified spirit which has been denatured. The denaturing substance, if not properly selected, may affect the quality of the articles manufactured. This includes a very large number of industries, including the manufacture of alkaloids from opium, datura, etc., etc., *i.e.*, products which do not contain alcohol in any form.

(iii) Industries which use alcohol as a raw material, but which so change it during manufacture that the manufactured article is quite different from alcohol and is not subject to a spirit duty under the excise law. This includes such industries as the manufacture of chloroform, iodoform, etc.

The recent Government resolution granting certain concessions with regard to the use of industrial alcohol removes the excise restrictions which hitherto existed in connection with industries which fall under (iii), and if this resolution is interpreted liberally, it ought also to remove some restrictions which attend the use of denatured spirit as at present obtainable. For the manufacture of products under (i) no definite policy has yet been announced by the Government.

To meet the case of this industry specially, I would propose that the Commission should recommend the following concessions with regard to the use of duty-free rectified spirit :—

(*a*) Government should permit the use of rectified spirit for medicinal preparations in bond and assess duty on the spirit contents of the preparations when they leave bond. This procedure which is followed in England will relieve the manufacturer of the burden of the excise duty which he has to pay on spirit which has been lost by evaporation and in various manipulations.

(*b*) As an alternative to manufacture in bond, I would suggest that Government should fix a certain allowance for loss in the manufacture of medicinal preparations and give a rebate in duty on this. In all cases where these concessions are given, the party benefitting thereby must satisfy the Excise Department that it will not use the spirit for any other illegal purposes. In determining the rebate allowed for losses, I would urge that the attention should be paid to the climatic conditions of India.

(*c*) For purposes where alcohol is used as a secondary material, *i.e.*, as a solvent in the extraction of alkaloids, etc., Government should permit the use of denaturants other than those (pyridine bases, etc.), which are at present in use. In this connection I would suggest the adoption of rules similar to those that came in force in England soon after the war.

**Opium preparations.**

The price of opium (at present Rs. 34 per seer or Rs. 24 per seer under certain conditions) is so high and the percentage of morphine which Indian opium contains is so low—often 4 per cent. and less—that it is not practicable to manufacture morphine which will compete with the imported alkaloid in price and quality. I would therefore suggest that the Commission should recommend proposals which will make Indian opium available for manufacturing purposes.

The concessions should be of a nature which will take into consideration the varying quality of Indian opium. It may be issued in India at a price which would be paid for it by manufacturers in England and elsewhere.

**Government aid.**

There are in India industries so various in character and in such different stages of development that it is not possible to lay down a fixed rule regarding any one of the methods of giving Government aid enumerated under Q. 5. For this reason I would not place any limitation on Government aid. The forms of aid of the most general application appear to me: (1) supply of machinery and plant on the hire-purchase system, (2) guaranteed or preferential Government purchase of products and (3) exemption for a limited period of the profits from income-tax. These forms of Government help may be found sufficient for some existing enterprises, but for industries for which there is ample scope in this country but which for some reason or other have not been touched by private enterprise, other forms of Government aid may be found necessary. I am not opposed to money grants-in-aid or loans with small interest, if it is found that this is the only form of aid which will stimulate certain new enterprises. In all cases of Government financial aid, I would propose a system of checking or auditing accounts of such industries in addition to the supervision exercised through the Department of Industries. This supervision should in no case be left to the ordinary administrative machinery of the Government.

It must be noted here that all these forms of Government aid may fail in certain cases where products cannot be manufactured from Indian raw material owing to the systematic attempts of foreign manufacturers for mastery of the Indian market. Competition of this character will by no means be rare, and I would strongly urge that Government should keep this contingency in mind and also the methods of counteracting such unfair competition.

I am generally in favour of pioneer industries in the case of industries for which raw material and suitable labour conditions, etc., exist in the country and which for lack of sufficient capital or expert knowledge have not shown the expected results. Such pioneer factories should only be started on the recommendation of the Provincial Director of Industries, assisted by an Advisory Council, and the object of these factories should be to investigate the commercial practicability of a particular industry. These factories should be conducted on strict business lines and the results should be made known to the public. Such factories, if successful, should be handed over to private capitalists, the Indian capitalist having always the preference.

**Government and external trade.**

External trade of India may be divided in two parts, viz. (i) with the United Kingdom and British Dominions and (ii) with the rest of the world. The United Kingdom has the lion's share both of the import and the export trade of India, and if the principle of limitation of the Government aid to industries which compete with external trade were adopted, a large volume of trade, *i.e.*, the portion with United Kingdom, will enjoy immunity from Government interference.

As regards the chemical industries in particular, adoption of this principle will lead to curious results. England exports to India all the heavy chemicals, while Germany, which is next in importance to United Kingdom, exports dyes, essential oils, alizarine, indigo, etc., etc., precisely the products which she exports to other countries, including the United Kingdom. Similarly with imports: England is the largest importer of Indian oils and seeds which are re-exported to India in the form of soaps, refined oils, paints, etc. If the Indian Government were to lay upon itself the self-denying ordinance indicated in Q. 14, it would mean that Government would be barred from helping industries for which ample raw material exists in this country, while it would be perfectly free to help, even to finance, the manufacture of alizarine, synthetic dyes and drugs, etc., etc., *i.e.*, products for which India, for the present at any rate, is as unsuitable as is Lancashire for growing cotton. The answer to Q. 14 is therefore an emphatic negative. All consideration as regards Government aid must be guided by Indian interest only.

**Technical aid.**

As regards technical aid to industries, the form of such aid must depend largely on the particular needs of an industry. The first necessary step in this direction appears to me to take an extensive survey of existing industries, large or small, and supplement it by a survey of all such resources which, with the necessary technical knowledge, might be utilized for profitable industries. Cottage industries, *e.g.*, weaving, dyeing and printing, paper making, leather tanning, sugar making, etc., which, in spite of the establishment of industries on modern lines, are bound to exist for a long time yet, should be fostered by every possible means. To such industries in which the profits are generally very small Government should give all expert advice free, and, if necessary, facilitate their obtaining the necessary raw material and the marketing of their products. The best way to achieve this would be to conduct a detailed survey of the needs of cottage industries of a province and the information so obtained should be placed before experts It is not suggested that each Provincial Government should keep a staff of experts on different subjects. The cottage industries work more or less with crude methods and the expert advising them will not be required to devise any elaborate plans for modernizing the particular industry, but simply to indicate possible improvements by processes which would tend to improve the quality of the product or to check avoidable losses. I think this kind of work could be carried out in laboratories of our colleges by Indian graduates. The solution of problems relating to cottage industries will not generally involve any original research. All that is needed is to bring established scientific facts relating to these industries within the reach of workmen, and this the Indian science graduate may be expected to do. I understand that assistance of this kind is at present given to agriculturists in this Presidency by the Agricultural College, Poona.

The case of those industries which either for want of technical knowledge or capital have not yet been established in India is different. Under this heading also fall those industries which, though started in India, have failed for some reason or other. For these industries also the existing resources of the country should be minutely investigated, and the result of these surveys, together with the general information about the industry in which any particular raw material can be profitably utilized, should be made available to the public in the form of monographs on the lines of consular reports. I would also suggest that such reports should be widely advertised.

For the present India may be said to be without chemical industry of any importance, and some attempts which have been made to manufacture matches, soaps, glass, candles, etc., cannot be said to have met with any great success. The fact is that some of these enterprises have been started with insufficient capital, in some the difficulties of manufacture have been too great, while for some this country is probably not at all suitable. I believe that some of these manufacturing industries, *e.g.*, soap, glass, candles, etc., can be successfully worked if a proper choice is made as regards their locality. Foreign articles have to travel such long distances in India itself before reaching their final destination that a certain amount of protection is afforded to industries of this class. Most of these industries suffer from lack of expert advice, and if sufficiently large demand exists, I would suggest that Government should engage the services of an experienced soap-boiler or glass-melter to help these factories. No fixed rule can be laid down as regards the conditions of the loan of these experts ; local conditions, character of work, financial position of the parties will influence such loan considerably. The loan of Government experts, except in rare cases, should not be free. I am also of opinion that the results of researches of these experts should be published, and if the nature of results obtained permits it, they should be embodied in a patent. These should always be Government property.

For other chemical industries which have not yet been attempted but for which raw material probably also favourable local conditions exist, *e.g.*, manufacture of alkalies and products from manganese and chromium ore, etc., the kind of help needed is of a far exacting nature. Some of these industries, *e.g.*, alkalies, ammonia, need a most thorough preliminary investigation, specially in the light of modern methods. I should suggest that Government should initiate such investigations, and if the results are favourable invite capitalists in India to take up the manufacture. In all cases where a large industry of this kind has been started and in which much of the initial expenses of prospecting and other investigations have been borne by the Government, I would make it a condition that such a factory should employ a certain number of Indian graduates trained in Europe. It is not meant that these graduates are to be regarded as or to be paid the salaries of experts. The object of such a condition is to create an opening for capable Indians for gaining experience and becoming experts in course of time. This system of engaging the services of university trained chemists or engineers without previous practical experience is a most noticeable feature of large German chemical works. So few Indian graduates studying in Europe at present have opportunities of becoming experts, that openings must be created for them in India, if Indians are to take upon their own shoulders the responsibilities of industrial research in this country. The price of experts is absurdly high in India, and if conscious and persistent efforts are not made in this direction, India will remain helplessly dependent on foreign experts for generations to come.

In this connection I would like to draw the attention of the Commission to the policy of the Excise Department. This has hitherto been regarded so much as a revenue earning department with police duties, that during these three years of war it has failed to realize the rôle which it could have played in stimulating new industries. Some concessions have only been lately granted, but I do not think that these go far enough. These are most useful for certain industries, but there are larger possible industries, *e.g.*, manufacture of medicinal preparations—which can derive no benefit from these concessions.

India is so rich in drugs, and this fact has been so often repeated by distinguished witnesses before this Commission, that I think it is a pity that even after three years of war Government could not have devised a plan for utilizing or helping to utilize these resources. This department urgently needs a scientifically informed personnel which will intelligently anticipate public needs and endeavour to meet them in a bold, confiding, and whole-hearted manner.

I would also here suggest that Government should take some initiative in granting facilities for the manufacture of morphine and other products from opium.

Official organization.

To carry out the industrial policy of the Government I would propose the formation of a Department of Industries under a Director of Industries. The Director should be assisted by an Advisory Board which should be so constituted as to represent the various commercial interests of the province. The members of the board should be nominated by Government and should include some of the Government experts. It should also include men of scientific attainment, official as well as non-official. The board should be advisory, the executive head of the department being the Director. It should formulate schemes for the development of industries which the Director should submit to the Government. The opinion of the board should always be placed on record.

The relation of the Provincial Government with this department should be of the same character as that which exists between the Educational Department and the Government. The Director of Industries, acting in most cases in concert with the Advisory Board, would influence the powers of modification or veto which the Provincial Government will possess. The Department of Industries should be a provincial department and should not be subject to control from the Imperial Government except in the matter of general policy.

The Director of Industries, if a non-expert official, will not influence an Advisory Board composed of men with business experience or scientific knowledge. He should, as far as possible, be a man with business experience, possessing wide scientific knowledge, something like the manager-chemist in large German chemical factories.

Organization of scientific resear

There are already in India several institutions intended for chemical research. The largest of these is the Indian Institute of Science. Besides this, there are others, more or less elaborately equipped departments supported by Government, *e.g.*, the Research Institutes at Pusa and Dehra Dun, the several agricultural colleges, and in addition to these a large number of colleges affiliated to the universities capable of teaching up to the highest Indian standard in science. Most of these institutions are handsomely supported by Government, and if the question of personnel were left out of consideration, many of these would not be found much inferior, in grants and equipment, to the chemical laboratories of Charlottenburg or Berlin. The Government is thus already maintaining at great cost a large number of finely equipped institutions and has placed them under the control of such chemists as it could secure by recruitment in England. From this it appears that, as far as pure chemical research is concerned, India is amply provided with institutions where it could be undertaken.

Instead of suggesting the creation of an entirely new Research Institute, I would prefer the addition of special departments to the institutions which already exist. Thus, laboratories fitted up to deal on demonstration scale with local problems connected with oil-seeds, sugar extraction, or tanning may be attached to the colleges or at Allahabad, Cawnpur, or Benares. If the industry is large enough, a school of tanning with a laboratory may be established in Madras. This system, if followed, will have the advantage of keeping, not only the professors and advanced students of the colleges in touch with the industrial needs of the province, but will also favourably influence the work of the advanced classes of our colleges. These departments dealing with special branches of applied chemistry should be under the control of experts, *i.e.*, persons who have not only specialized in a particular subject, but who have ability for original research. These experts should be men of established reputation and should be employed for a fixed period only. The present system of salaries with pensions is not the most suitable for securing men of this type. The salary which will have to be paid to an expert of established reputation will necessarily be large, but the advantages from his work in India will also be great. He will during the course of five or ten years for which he is engaged associate with Indian students, who as co-workers will have the opportunity of watching and learning scientific methods first-hand, and the research, which will result from the joint activity, will be of great benefit to the future development of the country. The field for selection of such experts should not be restricted to one country only ; the endeavour should be to get the best man irrespective of his nationality.

The present output of chemical research in India, both in volume and importance, is at present very little, and I think if our universities take a larger share in original chemical research, a great deal of useful spade-work will be accomplished. I do not wish to propound any scheme in this connection because it will involve a criticism of a department which is outside the scope of the present inquiry. I would only add that the success of a college or university should not be gauged by the number of M.A.'s or M.Sc.'s which it turns out, but rather by the amount of original research which it has been able to publish in a year.

As regards technological research, I doubt very much whether Government can undertake this expensive branch of research successfully if it does not at the same time initiate the establishment of the industries in connection with which such research is carried out. The whole history of chemical industry shows that processes which have been discovered in laboratories have been perfected at great cost only outside the laboratory. Besides, the demands on this kind of research vary so much with each industry that it is neither practicable nor economical to equip a single institute which can undertake technological research in the whole domain of applied chemistry. Private capitalists may not like to undertake this initial expense for a new enterprise, but Government can always deal with each case on its own merits, and may contribute its initial cost by way of loan of its experts or money on suitable conditions.

I am opposed to the centralization of all the scientific and research departments under the control of a single expert. The conditions in each province in India differ, and I would leave the provincial experts or heads of scientific departments a free hand.

There are, so far as I am aware, no libraries in this Presidency which contain all the standard works of reference. There are several libraries which contain collections of text books and other more or less useful printed matter, and of these the Library of the Agricultural College at Poona is the best. This library also contains several useful works of reference. I think that cities like Bombay, Poona or Ahmedabad, *i.e.*, every city with a college or a scientific institution, should have a good library containing all standard works of reference. The absence of such a library is a sore need, and I strongly urge that Government should, as soon as practicable, provide Bombay with such a library.

ORAL EVIDENCE, 15TH NOVEMBER 1917.

*President.*—*Q.* You are representing Messrs. Powell and Co.?—*A.* Yes.

*Q.* This evidence is written in the first person singular as if it is yours?—*A.* It is on behalf of the company.

*Q.* Who is this "I" that is referred to? The evidence is that of Messrs. Powell and Co.?—*A.* I think it is a mistake. The written statement has my name on it.

*Q.* Who is this "I"?—*A.* Myself.

*Q.* You wrote this evidence?—*A.* Yes.

*Q.* Are you a partner in the firm?—*A.* No.

*Q.* Would you tell us the constitution of the firm?—*A.* It is a private firm.

*Q.* Is it an European firm or an Indian firm?—*A.* Indian firm.

*Q.* You have got an English name and how was the name adopted?—*A.* I cannot give evidence on it.

*Q.* Do you know anything about the history of the firm?—*A.* It is in existence for more than twenty years.

(At this stage the chief partner of the firm stated the history of the firm.)

*Q.* In the manufacture of surgical instruments you would require a mechanical engineer?—*A.* We have none. The manager who looks after that branch of our industry has had European training. He went over to Europe and studied the thing on the spot, and he looks after the whole thing.

*Q.* How long was he in Europe?—*A.* For a couple of years.

*Q.* Did he go through the training as mechanical engineer, or where did he get training there?—*A.* I do not think he went through mechanical engineering training. But he studied the manufacture in different places.

*Q.* He is not an actually trained mechanical engineer?—*A.* No.

*Q.* Who actually makes the instruments?—*A.* We have skilled workmen, that is Indian workmen.

*Q.* What patterns do they work on?—*A.* Well-known English patterns.

*Q.* They copy English patterns?—*A.* Yes, with some of our own modifications also occasionally.

*Q.* Where do they get steel from?—*A.* From England usually.

*Q.* You do not get it now?—*A.* No. We have stocks.

*Q.* What kind of workshop have you? Have you organized it like the ordinary mechanical workshop?—*A.* Yes. There are several workmen, and there is a very small foundry, but it has been only recently added. In fact, I may point out that in 1900 we exhibited our goods at the Paris Exhibition, and out of the eleven competitors for the best surgical instruments four got medals and of these four we were one.

*Q.* When did your manager go home to get this training?—*A.* Later on.

*Q.* He had not been home before you got this prize?—*A.* No.

*Q.* Who was in charge of the surgical instruments manufacture then?—*A.* We had at the beginning one gentleman by name Mr Bink. He was an Englishman and an expert. He, used to know the line very well.

*Q.* That is a good many years ago?—*A.* It was in 1898 or so.

*Q.* When did he leave the firm?—*A.* After four years.

*Q.* Somewhere about 1902?—*A.* Something like that.

*Q.* Who was with the firm when you exhibited in Paris?—*A.* He was with us up to 1902.

*Q.* He came to you in 1898?—*A.* Yes.

*Q.* Have you exhibited surgical instruments since 1902?—*A.* In several places.

*Q.* Where else have you exhibited?—*A.* At the Medical Congress time. We have got gold medals at different industrial conferences.

*Q.* And at any European Exhibitions since the Paris Exhibition?—*A.* No. We did not get a chance.

*Q.* What are you?—*A.* I am a graduate in Science and Arts of the Allahabad University and Doctor of Philosophy of Berlin University. I was there altogether six years.

*Q.* What subject did you take up?—*A.* Chemistry, and I specialized in coal-tar colours.

*Q.* You say that from the point of view of pure chemical research India is amply provided with institutions where it could be undertaken, and then you say, "The present output of chemical research in India, both in volume and importance, is at present very little." How do you reconcile these two statements?—*A.* I have simply stated the fact as it is. I think it is notable that the educational curriculum of our universities for M.A. or M.Sc., say, does not require the candidate to submit an original dissertation before he can get the degree. That is one reason. Besides from my limited experience as a professor I think that the heads of laboratories have often too much teaching work to do to devote much time to research.

*Mr. C. E. Low.*—*Q.* On the question of industrial alcohol, you say on the second page of your note, " Government should permit the use of rectified spirit for medicinal preparations in bond." Would you be prepared to extend that to the use of rectified spirit in perfumes ?—*A.* I would not.

*Q.* Why ?—*A.* Because in the manufacture of perfumes there is not the same loss in manipulation as in the case of pharmaceutical preparations. If in certain cases there is much loss in evaporation or distillation, I would extend the same privilege to them. But this privilege would be forthcoming only where the loss due to distillation or evaporation or in manipulation is too great.

*Q.* Government allow five per cent. in the case of perfumes. What do they allow in the case of medicinal preparations ? Do they make a similar allowance ?—*A.* We know as a matter of fact that some people get 7½ per cent., but I am not quite sure.

*Q.* Has that point become one of practical importance so far as you are concerned ?—*A.* We have applied for it, but we want a much higher rebate than 5 or 7½ per cent.

*Q.* Does the amount of wastage vary very much in the case of medicines ?—*A.* Yes, it does in certain cases.

*Q.* Therefore to get over that difficulty you suggest the manufacture of medicinal preparations in bond ?—*A.* Yes.

*Q.* Is there any form of manufacture in bond connected with industrial alcohol ? At present is spirit denatured in bond ?—*A.* Not to my knowledge.

*Q.* As an alternative you suggest an allowance or rebate ?—*A.* Yes.

*Q.* I wish to ask you which is the most practicable suggestion, either to allow a larger rebate for spirit used in the manufacture of a number of different preparations in which the degree of waste is very varied, or the manufacture in bond ? They both seem to me to involve considerable difficulties.—*A.* Yes. I have put in a second alternative—the question of rebate in case the manufacture is on a small scale—because restrictions as regards buildings and so on would involve too great an expense.

*Q.* I think under the existing orders the Local Government has power to vary the denaturant, and the Government of India especially desired in a letter a couple of years ago that the discretion should be very liberally used. What is your experience now as regards the choice of denaturants in special cases ?—*A.* The present denaturants pyridine and other substances, if used in certain cases, leave a certain smell to the article in which it has been used and in any case in pharmaceutical preparations this smell is very undesirable.

*Q.* Have you made any application to the Local Government in respect of the use of special denaturants ?—*A.* We have.

*Q.* With what result ?—*A.* It is being considered.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* In the first paragraph you say, " We have fitted up almost all the Indian War and Base Hospitals and Hospital Ships with our aseptic hospital furniture and instruments." What instruments have you supplied them ?—*A.* Surgical instruments. Small orders have occasionally been given to us.

*Q.* The rest was fitted up by the Medical Stores Department ?—*A.* We do not know.

*Q.* Have you supplied any artificial limbs to war hospitals ?—*A.* We have. Individuals have come to us for them, and if they find our articles better they buy from us.

*Q.* There has not been any complaint about them ?—*A.* No. I may say that in a particular case the artificial limb supplied by Government was not so good as ours and Lord Hardinge at his own private expense had two artificial limbs bought from us.

*Q.* Have you applied for any orders from the Medical Stores Department ?—*A.* No. We have not applied. Whatever Government orders we got, we got directly from Simla.

*Q.* You have not got them through the Medical Stores ?—*A.* No.

*Q.* If they are short of articles do they ask you ?—*A.* Not generally. In the matter of war hospital fittings, we have received orders direct from Simla, and from the O. C. of different hospitals or the A. C. R. E. of the different divisions.

*Q.* Whatever they cannot get from the Stores they order from you ?—*A.* Yes.

*Q.* Are your workmen working under Indian superintendence ?—*A.* Entirely.

*Q.* And they are able to turn out the best quality ?—*A.* Entirely to our satisfaction and the satisfaction of our customers.

*Q.* You say, " The United Kingdom has the lion's share both of the import and the export trade of India." Do you mean in the export trade of India ?—*A.* We mean only chemicals.

*Q.* Chemicals are exported ?—*A.* Raw products which can be made into finished chemical articles.

*Q.* Were you at the Charlottenburg Institute ?—*A.* Yes. For about six years altogether.

*Q.* Did you go yourself, or were you sent by somebody ?—*A.* I was a scholarship holder from a Hindu Education Fund in Bombay.

*Q.* And after coming back you joined Messrs. Powell and Co. at once ?—*A.* I was for some time Professor of Chemistry at Lahore, and later on I joined this company.

*Q.* You think the Indian labour which you employ is working well ? Had they been trained before they came to you ? *A.* Generally we employ good untrained people and they have their training in our workshops. Then they often leave us and go to some factories in Bombay. For instance, in the case of artificial limbs some of our best workmen went over to the Medical Stores Department when they began to manufacture artificial limbs some time ago. They went there and commenced work and produced some bad work.

*Sir D. J. Tata. Q.* Is it on account of bad supervision or is it due to bad training ?—*A.* We make artificial limbs from willow wood and that is light and easy to fit in. The wood which is used in the Stores is not the same and possibly they have less experience of this.

*Hon'ble Sir Fazulbhoy Currimbhoy.—Q.* You think that by having this Medical Stores Department, the Government is competing with private enterprise ?—*A.* Yes.

*Q.* If the Government asked for tenders do you think there are more than one company or firm who could tender for or supply these things ?—*A.* I do not know whether there are others. There are no others except the Medical Stores in the matter of artificial limbs.

*Q.* Supposing there were no Medical Stores you would be the people to whom to go and you would be the only firm who would tender ?—*A.* No. There would be competition from outside India. There is nobody in India to compete with us in artificial limbs.

*Q.* How many years has your firm been started ?—*A.* For more than 20 years.

*Q.* And nobody else has started another one ?—*A.* No.

*Q.* Do you think that if the Government had the tender system they would get cheaper articles ?—*A.* A little cheaper.

*Q.* Do you know the price of articles supplied by the Medical Stores ?—*A.* No.

*Sir D. J. Tata.—Q.* You suggest that you actually commenced pioneering this industry of making artificial limbs and the Government butted in and put in their own man and drove you out of business ?—*A.* Not drove us out of business altogether. We have been supplying for many years. A few of our people went there.

*Q.* How many limbs do you make ?—*A.* We can make fifty per month.

*Q.* You are fitted in every way for making fifty per month ?—*A* Yes.

*Q.* What is the largest amount you have ever made on an average ?—*A.* We get only railway orders or factory orders. We make in a month on an average about ten to fifteen. We get almost all the railway orders and orders from private concerns, that is, factories.

*Q.* I happen to know by the merest accident of one limb that you had made for a friend of mine, which was highly spoken of in Simla by the Viceroy's Surgeon who examined it, and said that it was very well made. Have you made any representation to anybody as to this competition ?—*A.* The Deputy Director General of Stores was at our place. He made enquiries whether we would be able to supply. We promised and said that we would supply all. He asked us, how many will you make in a month. We said, as many as Government might require. That enquiry has been made, and so far no reply has been received.

*Q.* Except the hospital furniture, the other things that you supply are all made in this country ?—*A.* Yes.

*Q.* But with materials imported from Europe ?—*A.* Yes. First we fitted the Lady Hardinge's Hospital. We have completed the Gerard Freeman-Thomas Hospital and Jamsetji Jeejeebhoy Hospitals.

*Q.* You say with reference to the Medical Stores Department "It is also a manufacturing department which supplies goods not only to Government hospitals and dispensaries, but also to Native States and Municipalities."—*A.* We would get those orders if the Medical Stores Department was not there. We are also in this line. The Medical Stores Department supplies Native States and Municipalities, and it comes in our way.

*Q.* We were told this morning by the officer in charge of the Medical Stores in Bombay that the Stores do not serve private individuals and do not enter into competition with private enterprise.—*A* Native States cannot necessarily be regarded as a Government Department.

*Q*. Do the Native States apply of their own accord to the Stores, or are they influenced to go to them ?—*A*. I do not know.

*Q*. Have you tried to introduce your goods into Native States ?—*A*. We have supplied to a great many Native States.

*Q*. Then what have you to complain of ?—*A*. But we object to the principle of Government enterprise competing with private enterprise.

*Q*. It is not Government enterprise.—*A*. The Medical Stores Department is Government enterprise.

*Q*. But Mr. Eyres' factory for manufacturing artificial limbs is not Government enterprise ?—*A*. From what I have listened to this morning, I think we have no reason to make a distinction between Government Department and Mr. Eyres' private factory.

*Q*. You say, "Soap, glass, candles, etc., can be successfully worked if a proper choice is made as regards its locality." There was a gentleman coming to give evidence about glass manufacture, but he never turned up. I understand that you have some connection with a glass factory ?—*A*. Yes.

*Q*. Can you give us the history of that factory ?—*A*. The Paisa Fund Glass Works ?

*Q*. Yes. Is it a commercial venture ?—*A*. It is of purely educational value.

*Q*. It is not worked as a factory for commercial purposes ?—*A*. Not necessarily.

*Q*. Why was Talegaon selected for it ?—*A*. It happened to be midway between Poona and Bombay, and most of the people who took any interest in this organisation were in Bombay and Poona.

*Q*. You say that a proper choice should be made as regards the locality for such industries. It struck me as if the locality that you selected for this particular industry was not suitable.—*A*. We do not regard the Talegaon Factory as a commercial undertaking.

*Mr. G. A. Thomas.*—*Q*. Have you seen any of the artificial limbs produced by the Medical Stores, Bombay ?—*A*. No.

*Q*. You have also told us that the Director General when he went to you asked you how many limbs you could manufacture and you told him that you could manufacture as many as he wanted ?—*A*. When the enquiry was made.

*Q*. That work does require specially trained workmen ?—*A*. We have got men working with us for nearly 18 or 19 years.

*Q*. But they cannot turn out more than a certain number each month ?—*A* We have got enough workmen.

*Q*. As regards making medicinal preparations in bond, are there not two factories making perfumes in bond ?—*A*. I do not know. I am talking of medicinal preparations.

*Q*. The restrictions apply to both ?—*A*. We have applied for these concessions ourselves.

*Q*. You have no idea as to how these perfumeries are working ?—*A*. I do not know.

*Sir D. J. Tata.*—*Q*. We learnt this morning that there was a talk of starting an artificial limb factory in Byculla at the school for Disabled Soldiers. Major Marr said that he did not think that there was room for any more such factories. Will the manufacture of 20 limbs be enough to supply all the wants of the various hospitals ?—*A*. I think it will be enough—nearly 25 limbs.

*Q*. If 25 limbs are made, will that practically supply all the needs of the Bombay hospitals ?—*A*. Yes.

*Q*. Is another factory necessary ?—*A*. I do not think it is quite essential.

*Q*. And you are prepared to make 50 a month ?—*A*. If you want so many.

*Q*. The Medical Stores only supply the hospitals ?—*A*. It is only recently that the Medical Stores Department has taken that up—the manufacture of artificial limbs. But before we were the only people who made them.

*Sir F. H. Stewart.*—*Q*. Do you find yourselves undersold by the artificial limbs of the Medical Stores ?—*A*. We do not know their prices.

## WITNESS NO. 294.

RAI SAHEB CHANDRIKA PRASADA, *Retired Assistant Traffic Superintendent, Bombay, Baroda and Central India Railway.*

*Rai Saheb Chandrika Prasada.*

### WRITTEN EVIDENCE.

Capital.

*Q*. 1. I have seen several Branch Railway Companies successfully floated in India. I also saw the Co-operative Credit Society of the employés of the Bombay, Baroda and Central

India Railway floated—rather oversubscribed in 1912-13, while I was a member of its Managing Committee for about three years from its very inception.

For the co-operative industries we require special banks to advance money at low rates of interest, say at about 5 per cent. per annum. The rates charged by the co-operative credit societies in India vary from 9 to 18 per cent. per annum, which are rather high. I would suggest the establishment of Industrial Banks and Hypothec Banks, with a Government guarantee or cash advances, on the lines of those established in Japan or on the lines of the Industrial Bank and the Credit Societies of Denmark. The Japanese Government guarantee a return of 5 per cent. per annum on the capital of the Hypothec Bank of Japan, which attracts a large amount of capital from smaller capitalists upon debentures, which the bank is authorized to issue to the extent of ten times its own paid-up capital; while the Credit Societies of Denmark raise money upon bonds they issue on the land and building security of all its members, the rates of interest varying from 3½ to 4½ per cent. per annum. In Japan the amount of loans given on the mortgages is limited to two-thirds of the value of the property mortgaged, whilst in Denmark the maximum limit is 60 per cent. though the actual percentage is generally 50.

Industrial bank.

The Industrial Bank in Japan lends money upon bonds and shares of industrial companies.

In Denmark the Industrial Bank is required to maintain a large reserve fund, owing to the greater risks involved in industrial enterprises.

*Q.* 3. The cultivation of land has been carried too far in India. The people grow too much corn which has impoverished the soil, and neglect their live stock and production of milk, butter, ghi, etc. They have lost also their indigenous industries by the introduction of foreign goods, with which they are unable to compete owing to want of industrial training and general education.

Government assistance.

*Q.* 4. My knowledge of financial aid by Government to industrial enterprises is limited to the terms allowed by His Majesty's Secretary of State and the Government of India to Railway Companies from 1849 to date. The terms include guarantees of interest, subsidies, free grant of land, rebates, etc.

*Q.* 5. Money grants-in-aid should be given for certain kinds of industrial institutions in which Government is directly interested, as for instance, to Co-operative Unions for the breeding of live stock, or for control work to test the remunerative character of milch cattle, mentioned in answer to Question No. 12. But I do not think Government should give pecuniary assistance of any of the eight kinds to purely private enterprise Government may, however, in sound concerns take some shares and have preferential purchase of products for state requirements.

*Q.* 6. In the case of joint stock companies or banks established under Government patronage of any kind, Government should have the accounts of such companies audited by its own accounts officers. The system will create confidence in the public mind and enable the companies to raise their capital easily. The confidence of the investing public in shares of Branch Railway Companies is greatly due to Government audit of the companies' accounts.

*Q.* 7. I am strongly of opinion that Government should arrange to organise agricultural factories on co-operative lines or start them as pioneer or demonstration factories to be eventually made over to the agriculturists as soon as they are trained to manage themselves.

*Q.* 8. Government may start co-operative dairies for the manufacture of butter, ghi, mawa, cheese, etc., out of milk to be supplied by agriculturists and others living in the locality. The factories should be worked with the latest and best machinery to be purchased on behalf of the people with money to be lent by Government or borrowed from Hypothec Banks at a moderate rate of interest. Such factories may be started first in few districts in each province where there are sufficient numbers of milch cattle.

Other industries which I suggest in answer to Question 12 may as well be organised or started under the auspices of Government, to be eventually worked by the people, on co-operative lines.

Capital.

*Q.* 10 (*a*). In order to attract capital, Government should provide ample safeguards against losses of the kind caused in 1913-14 by the failures of banks like the Peoples' Bank, the Credit Bank, the India Specie Bank, etc. Government should lay down statutory provisions against promoters or syndicates and agents making out the articles of association by which they become sole masters and defy the shareholders if they make any attempt at improvement.

Under the existing conditions, it is absolutely necessary to have Government audit of accounts of banks and joint stock companies. Under Government control such concerns will have the confidence of the public and the capital will then be forthcoming.

Co-operative societies.

*Q.* 12. I am of opinion that in order to improve the unsatisfactory condition of the agriculturists and land-owners of India, it is necessary to establish industrial works and institutions in connection with agriculture to be eventually worked and managed by the agriculturists themselves. Accordingly I advocate the formation of co-operative unions and societies of land-owners and cultivators for the following purposes :—

(*a*) Improving the breeds of cattle and other live stock, and increasing the production of milk and milk products ;

(*b*) Joint sale, and joint manufacture and sale, of agricultural produce generally ;

(*c*) Joint purchase of agricultural requirements in seeds, manures, cattle food, implements, machinery, etc.

As the people are very ignorant at present, it is necessary that the Government departments in charge of agriculture and co-operative societies should take the lead and establish cattle-breeding stations in all important villages or groups of villages ; these should be pushed and brought to the notice of the people by propagandish work carried out intelligently until the people realize the importance of using good bulls in order to produce large milkers and good bullocks for draught work, when the people will themselves manage the breeding stations on co-operative lines, as they do in Denmark with expert advice and small money grant-in-aid annually from Government.

Similarly where there are sufficiently large numbers of milch cattle, arrangements may be made to establish co-operative dairies for the manufacture and joint sale of butter, ghi, mawa, cheese, etc. In order to increase the yield of milk the people should be persuaded to grow larger quantities of fodder and cattle food.

Co-operative societies may be formed also for the following purposes :

(*a*) Joint sale of grain, potatoes, and other agricultural produce ;

(*b*) Ginning of *kapas*, and pressing and joint sale of cotton and cotton seed ;

(*c*) Extraction of oils from seeds, and joint sale of oil, oil-cake, bulls, etc. ;

(*d*) Joint manufacture of sugar, *gur*, rab, etc. ;

(*e*) Joint sale of cattle and other live stock ;

(*f*) Bone-crushing mills.

The advantages of these co-operative unions and societies will be—

(*a*) Cheapening the costs of production and sale-prices ;

(*b*) Improvement in quality and quantity of produce ;

(*c*) Realization of full value by the agriculturists, by saving the profits at present made by middlemen. This I hold to be a true remedy for the heavy indebtedness among the agriculturists in India.

In regard to point (*c*) I may state that at present agriculturists of India have to sell some of their produce at low prices, or at a loss. Take, for instance, their cattle stock, which takes about four years to be reared. The cost of rearing a bull or cow at say two annas per day or four rupees a month amounts to Rs. 192 per head, while the prices realized on sale give an average of about Rs. 50 only.

Grain and other agricultural produce are generally sold by the cultivators at inopportune times, in ignorance of market prices, under pressure for Government demand or for return of money-lenders' advance. These causes make the agriculturists part with their produce at low—sometimes unremunerative—rates, and this accounts for their continued indebtedness. The remedy is the formation of co-operative unions for joint sale of such produce, under intelligent management at proper times and proper place.

*Q.* 15-16. To assist co-operative unions and associations in Denmark, Government has appointed a number of agricultural counsellors among whom are—

2 Counsellors for breeding domestic animals (cows, sheep, etc.),
4 „ for dairies,
2 „ for agricultural machinery,
1 Counsellor for fruit culture and gardening.

These officers give expert advice to agriculturists and their unions. The only charge levied from them for the services of the officers is 8 Krones = Rs. 7 per day, except for the dairy counsellors for whom only 2 Krones per day is charged, for travelling allowance.

*Q.* 17. For the agricultural industries suggested herein, I think the Government should allow the following assistance :—

(*a*) Extend the operations of the Civil Veterinary Department to agricultural villages instead of confining them to cities and towns. Cattle-breeding stations should be established in all important villages or groups of small villages, and the men in charge, besides supervising and conducting the breeding operations, should vigorously carry on the propagandist work among the people, impressing upon them the importance of using the best bulls. This work should be done with sympathy and a desire to advance the aims and objects of the work.

(*b*) Appoint experts to organize dairies and other agricultural factories and render assistance to the people in the construction of buildings, selection of machinery, and working of the factories. Until such time as the people are trained to manage themselves, it will be necessary to start these as pioneer or demonstration factories, which may eventually be made over to the agriculturists of the locality.

(*c*) The Registrars of Co-operative Societies should make vigorous efforts for the formation of societies for the joint sale of agricultural produce of various kinds, and for the sale and purchase of live stock, and for joint purchase of agricultural requirements.

*Q.* 18. All researches made by Government officers should be available to the public free or at a moderate charge.

*Q.* 19-20. See my answer to question No. 7.

Commercial museums.

*Q.* 28-29. Commercial museums will be useful only when the people are educated and trained to understand the merits of the articles exhibited. As the people have not the necessary training at present, there is no pressing need for them, but later on they should be established in all principal cities in India.

Exhibitions.

*Q.* 31-32. Industrial exhibitions will be very helpful and Government should organize and encourage them.

Land policy

*Q.* 41. The Government policy of raising land assessments on improvements effected by land-owners checks improvements in land, and consequently the land industries. If assessments are to be raised Government should share the cost of improvements.

Primary education.

*Q.* 44 (*a*). Yes. To advance the people industrially as well as otherwise, it is absolutely necessary to make education of the children of both sexes free and compulsory from the age of 6 to the age of 11 years, as is the case in the European countries, with special courses in industrial and commercial subjects. Attendance at continuation schools for eight hours per week may be made compulsory up to the age of 18 years.

(*b*) In connection with the carriage and wagon workshops of the Rajputana-Malwa Railway at Ajmer, I persuaded the railway authorities to open a technical school on a very small scale with day classes for boys and a night class for young workmen, also a drawing class held twice a week for lads working in the workshops.

*Q.* 45 (*a*). To train the people in various arts and crafts, technical schools and commercial schools should be established, besides elementary and secondary schools. The pupils turned out of the technical and commercial schools should be quite fit to take up their work directly after leaving the schools.

In agricultural schools and colleges, special courses should be provided for dairying and "control work" for testing the milk and butter yield from cows in order to judge their remunerative character.

*Q.* 46. I know apprentices of railway workshops generally in India are given general education, and technical education also to some extent.

*Q.* 47. I have seen a marked improvement in the workmen and apprentices trained in the schools mentioned in my answers to questions 44 (*b*) and 46. They are all-round better mechanics than those who have had no education.

One of the apprentices who was a graduate of the Allahabad University, trained in the Carriage and Wagon Shops and the Drawing Class mentioned in 44 (*b*) rose to the rank of an Assistant Electrical Foreman on Rs. 275 per month within 11 years. Since his premature death, another young man similarly trained at Ajmer has taken that post. There are a number of others now admirably working in the workshops, one of whom is an Assistant to the Analytical Chemist in connection with the Steel Foundry.

*Q.* 48. For the industrial training of the youth the State possesses excellent works in the railway workshops, over a score of which are now established in the principal centres in India, where practical training could be given to students receiving theoretical instructions im technical schools which should be established at all those places where the railway workshops are located. As the workshops belong to the State they should certainly be available for the training of the youth of the country.

*Q.* 49. I think it will be very desirable to provide separate schools for general education of children of agriculturists and artisans, so that they may attend schools during certain hours, while at other hours they may work at their fields or trade. Children of agriculturists in Denmark, attending compulsory schools, are allowed to remain half the day at home to learn farm work.

*Q.* 50. Industrial and technical schools should be under a separate Department of Industries. The two Departments (Educational and Industrial) should work independently and co-operate where necessary, pupils passed out of Primary or Secondary Schools being eligible for admission to the Industrial and Technical Schools.

I would divide the schools for general education into two classes, *viz.* :-

(1) for industrial and technical training, and

(2) for literary and higher professions.

Schools of the first kind should be entirely under the Industrial Department.

*Q.* 51. Supervisors and skilled managers may be selected from open fields or appointed from those passing out of Technical Schools and Colleges, preference being given to men already working in the lower grades provided they are fully qualified.

*Q.* 52. Employers of such men should, if they can afford, encourage the men to visit other countries or other provinces of India, by grants of suitable assistance. In cases where the experience gained by such visits would be of use to Indian industries generally, Government might contribute towards the expenses of the journey.

*Q.* 53. Railway freights are more favourable for foreign trade both in export and import goods, than for internal or local traffic. Traffic to and from Indian industrial works should be charged at the same rates per maund per mile as the same articles are charged to or from the sea-ports. The classification of goods on Indian Railways is very complicated, it should be simplified and made uniform for all State Railways at least. But this has not been done, although the Government of India have been pressing for it for the last 36 years or more. It is due to the separate administrations entrusted with the management and working of the State Railways.

(*Rai Sahib C. Prasada did not give oral evidence.*)

## WITNESS NO. 295.

*Mr. R. K. Kanga.*

MR. R. K. KANGA, *Managing Agent, Western India Glass Works, Limited, Sunth Road, Bombay, Baroda and Central India Railway.*

### WRITTEN EVIDENCE.

Capital.

The people in India are generally poor and of thrifty habits. They have little superfluous money for investment and that little they have they prefer to invest in safe concerns, known to have been soundly established, if at all they think of investing in industrial or such other concerns.

In the Western India Glass Works, Limited, none outside the limited circle of friends and acquaintances subscribed the capital.

Government assistance.

With the recognised habit and actual necessity of Indian women to wear bangles and with the extensive use of petroleum as lamp oil all over India, there is a growing demand for glass. It is therefore necessary that the Government should help the financing of industries making articles of daily necessity.

The best way of helping is to guarantee a certain minimum interest as in the case of Railways.

The Government should continue to participate in the profits till such time as they have recovered double the amount that they lent to the Company to make up the guaranteed interest in the early stages.

The Government guarantees would better be given through Industrial Co-operative Banks, but the Government control and supervision or verification of data in the early stages should not be any way severe or interfering, or it will tend to discourage enterprise.

Besides guaranteeing interest the Industrial Co-operative Banks should give loans on interest.

In my opinion there are more glass factories started than the demands require, for the reason that no factory, as far as I know, has got sufficient skilled labour to run it as a commercial success on a large scale. The few skilled hands that are available are quite insufficient and generally migrate from one factory to another, doing good to no factory.

I beg to attach herewith my replies to Bombay Government circular No. 6536 of 1st July 1916. (Appendix.)

As far as I know, the glass industry in India has suffered for want of real technical experts in the several branches of this industry. This industry is in its infancy yet and up to this time no real and efficient experts have been called out. Only men of mediocre ability from Europe and other countries have been taken to advise in and manage the technical side of this industry. This is one of the reasons for the poor progress of this line in India, although some improvements in various matters are now noticeable.

All new industries, such as the glass industry, should be exempt from income-tax and other local taxes till such time as Government consider them well established in India. Though there are a dozen or more glass factories in India and they have been striving for the last 20 years, they cannot be considered as established as scarcely any company has paid dividends.

Machinery and plant should be supplied to new industries on the hire-purchase system.

All machineries and plants and largely used materials, such as soda, should be free from import duties in the case of new industries till they get established.

Government should guarantee the purchase of articles for Government works at the same price as the imported articles even though in the early stages they may be slightly inferior to imported articles.

Pioneer factories.

In the case of absolutely new industries Government should establish pioneer factories. One such factory in one of the Provinces of India should suffice, and there approved candidates can be sent, on scholarships, from different parts of India.

The pioneer factory should be handed over to a private company only after other similar companies have been well established in other parts of India and when the factory is no longer required as a training ground.

Government organizations.

There should be an Industrial Research Department under the Government of India with a supplementary department in England. The results of research instituted at the suggestions of certain parties should only be communicated to those in whose interest it was carried out and not published for a period of two years.

Industrial surveys.

The results of surveys for industrial purposes, geological reports, and similar papers should be available to the public for references in the principal towns in India.

Museums and industrial exhibitions.

In my opinion, museums and industrial exhibitions will help a lot in encouraging the glass industry to advance by a comparison of the better makes of others with one's inferior makes, and faults will be remedied and efforts made to compete on equal lines as regards make, finish, etc.

The Government departments should publish lists of articles used by them and should exhibit them in commercial museums.

Those Government Departments which use glass articles ought to patronize those really deserving glass factories where the quality of manufacture is paid more attention to than mere cheapness and must not patronize any factory on sentimental grounds.

Forests.

Forest produce, such as firewood, grass, bamboos, etc., must be made available at favourable rates to new industries, such as glass factories and the like, for at least five years. As fuel is one of the costliest items in a glass factory a reasonable charge per cart-load must be fixed, irrespective of whether better amounts can be realised otherwise by Governments.

Land policy.

The present land policy of Government requires great modification for industrial development.

Government should help in the acquisition of land for industrial purposes by limiting the cost of such lands to a maximum of 30 to 50 times the assessment of the land required.

Government waste lands must be given ungrudgingly at the usual low prevailing rates if not entirely free where the areas required are large. The present law allows the so-called market rate of the time which in the case of industrial development is often artificially inflated.

The surface surplus water should be allowed to be freely utilised instead of allowing the same to run to waste and the interest already established lower down the stream should not be allowed to be interfered with in future, by any other use of water, higher up the stream.

Training of labour.

I believe that the lack of primary education does hinder industrial progress as, from my experience, I find that the majority of hands in a glass factory, including those drawing very nice and officer-like salaries, are illiterate and consequently frequently troublesome and heedless of discipline.

I am doing my best to train the hands in some special lines. I pay them well and increase salaries for good work from time to time and give every reasonable facility and help. Some apprentices are being trained in this factory but sufficient time has not elapsed to enable me to pronounce an opinion at this stage. But if these men stick to this work they will benefit themselves more than the factory which, however, will also be benefited, as these factory-trained employees will turn out better work than outsiders. If industrial schools are established the present dearth of skilled labour will to a certain extent be reduced.

Training of supervising and technical staff.

To turn out supervisors and skilled managers, Government must run certain concerns as suggested in my notes. Managers of private concerns, who go at their own or their company's expense to foreign countries, must be given facility to study the lines of business by Government getting admission for them in suitable factories and giving them every possible facility in any direction required by them.

I believe it will help the glass industry a good deal if pamphlets on this subject, on the lines of those in other countries, are printed by Government in which questions regarding various difficulties may be answered by well-informed persons, translations of foreign pamphlets containing useful information may also be made.

**Railway rates.**

There is a great disparity in railway rates for glassware, this hinders commercial progress considerably, the so-called concession rates are very high and it is, in my opinion, necessary that the freight for glassware on all the railways should be fixed on one scale for all and on the distance only. Great improvement is needed in the handling of glassware goods by all railways. At times great breakage has occurred, causing serious loss to the factory and in many cases leading to loss of customers.

## APPENDIX.

## GOVERNMENT OF BOMBAY.

### REVENUE DEPARTMENT.

Circular No. 6536.

*Bombay Castle, 1st July 1916.*

### GOVERNMENT CIRCULAR.

As it is thought advisable to obtain a clear idea of the condition of the various industries in the Bombay Presidency before the visit of the Indian Industrial Commission, you are requested to send brief replies to the following questions so as to reach the Deputy Secretary, Revenue Department, Bombay Secretariat, not later than the 20th July :—

(*i*) Is the glass industry in a satisfactory and prosperous condition ?

(*ii*) If not, what are its difficulties or disabilities ?

(*iii*) In what way can these difficulties or disabilities be removed ?

(*iv*) Is there any particular question in connection with this industry that you consider important enough to be investigated by the Indian Industrial Commission ?

(*v*) Is there any other industrial question of general interest that you wish to suggest for the consideration of the Commission ?

(*vi*) Do you wish to give evidence, either written or verbal, before the Commission ?

G. A. THOMAS
*Deputy Secretary to Government.*

To R. Kanga, Esq.,
Manager, the Western India Glass Factory, Panch Mahals.

---

Dated Sunth Road, 12th July 1916.

From—R. K. KANGA, Esq., Managing Agent, Western India Glass Works, Limited ;

To—G. A. THOMAS, Esq., Deputy Secretary to Government, Revenue Department, Bombay.

In acknowledging Government circular No. 6536, dated the 1st July 1916, I beg to report that what I give below is my personal opinion formed after an experience of nearly seven years in this line. This experience is of gas-fired furnaces as on the continent of Europe and other countries. We have got at Sunth Road a gas-fired furnace, the first of its kind as far as we know in the Bombay Presidency, the other furnaces being direct-fired ones. We are gasifying wood-fuel instead of coal.

We reply below *seriatim* to questions asked in the circular above referred to :—

1. No, decidedly not.

2. The difficulties are numerous and may be briefly described as under :

(*a*) Absolute want of skilled labour, particularly smelters, blowers and helpers, and consequent insecure position of the factory, the advantage of which is fully taken by the few trained hands that are now available.

(*b*) Difficulty of enforcing discipline and exacting work from skilled as well as even ordinary workers owing to paucity of such workers and the sure chance of such men, if dismissed from one place, getting better paid iobs at another competing factory as most of the factories suffer for want of suitable labour, both skilled and unskilled.

(*c*) Want of a really competent expert in India, of vast experience in smelting and machineries used in glass works, to guide and help the factory in case of technical and other difficulties cropping up principally in gas-fired furnaces.

(*d*) The very low selling prices of Japanese goods which make it almost impossible for Indian glass factories to compete successfully and with profit.

(*e*) The ever-rising prices of raw materials, *i. e.*, soda, chemicals, fuel, packing materials, etc., and proportionately reduce prices of manufactured goods due principally to the low rates of Japanese goods.

(*f*) The tendency of the Indian markets to take only cheap stuff regardless of quality whereby factories which prefer durable and good manufacture to cheapness, greatly suffer.

(*g*) Want of suitable working capital to tide over the trying and difficult initial stages after starting a new factory.

(*h*) Want of spirit on the part of the public and Indian merchants to encourage Swadeshi articles.

(*i*) Unhealthy competition of Indian glass factories among themselves.

(*j*) Difficulty of enforcing terms of agreement on skilled workers and practical helplessness in preventing them from leaving one work and going to another owing to legal proceedings taking a long time in case they are adopted.

3. These difficulties and disabilities may, in my opinion, be removed if the following means are resorted to by Government as they could not be remedied by other agencies :—

(*a*) The Government to help in securing suitable skilled labour, of the kind a factory requires, on reasonable salaries and on conditions suitable to both the employer and the employee.

(*b*) The Government to appoint a certain number of youngsters of sound physique and professional bent of mind as apprentices for smelting and blowing work and to post them to select factories for training for a period of two years or so; thereafter the same men to work in that factory on a reasonable salary for a further period of three years, so that the factory may get the advantage of its own training and the youngsters may themselves be benefited; the Government to give the factory some monetary help to meet training expenses and wastage in manufacture during training.

(*c*) By levying a big import duty on goods coming from foreign countries, particularly Japan, so that the present very low prices may rise

(*d*) By adopting one uniform cheap and proportionate railway freight on glassware to facilitate proper pushing of business; by adopting some means to save heavy breakage in transit of Indian glassware due to the careless handling of such goods by low-paid railway servants; by avoiding as many transhipments as possible of glassware booked *in quantities less than a wagonload* by giving special facilities to Indian factories to load glassware in *through* wagons to be placed at the disposal of the factory on requisition.

(*e*) By giving reasonable facilities for three to five years to factories in the vicinity of forests by charging small fees for the following materials largely consumed in factories.

I. Fuel required for the works.

II. Packing and building materials, such as wood for packing cases, bamboos, teak rafters and pole, and grass for packing.

These could be effected by fixing small fees per cartload or on weight as may be deemed advisable by the Forest Department.

(*f*) By making some provision whereby workers having made agreements with any company may be prevented from infringing their agreements on pretexts and leaving the works before the expiry of the period of contract.

(*g*) It would be to the interests of the Indian people if the Government were to import experts from Europe, well versed in all varieties of glass manufacture, in order to help the growing industry of India, which has to meet severe competition of outsiders.

4. No question is, in my opinion, of greater moment at the present time than that of dealing successfully with the very keen and killing Japan competition in the glassware business.

5. I would suggest training by Government of a number of hands in special branches of this industry, such as manufacture of coloured glasses, decorating on glass work, preparing chemical glasses and laboratory ware, manufacture of beads and window glass, etc., and with that view subsidising some concerns and equipping them for practical training under suitable

[illegible] ious branches of this industry are simultaneously worked in an Indian concern, the prospects of real commercial success are not many.

6. As I have nothing more to say, I do not wish to trouble the Commission by written or verbal evidence, but in case my presence be necessary before the Commission, I am quite ready and prepared to present myself before the Commission.

Praying to be excused for the lengthy reply.

*A rough outline of proposals for Government help to the Indian glass industry by establishing demonstration factories.*

In India there are a number of glass factories already fairly well equipped which could be turned at a moderate cost into teaching institutions where this art in its various branches may be taught under European experts who have specialized in different branches, such as smelting, blowing, cutting and finishing, sand blasting, decorating, laboratory ware, etc., or on blowing and other machines used in the manufacture of glass, etc.

Indian glass factories, without any exception, so far as I know, suffer for want of really skilled labour, particularly smelters skilled in coloured glasses, first class blowers, and mechanics conversant with various machines, such as bottle-making machines, press machines, cutting and finishing machines and sand blast machines.

The Government can help :—(I) By supplying the wants of factories which require experts by getting out experts from Europe or other countries on reasonable salaries and a contract for a fixed period.

(II) By placing selected youngsters of sound physique and professional bent of mind under such experts for training for at least three years in such factories and then sending them out to other factories which may be in need of such hands. These men must be bound down by an agreement to serve for at least five years wherever they are asked to serve by Government, preference being given to the needs of the factory where they are trained.

In cases where Government get out experts at the cost of the factory and train youngsters therein for the facility of other factories some monetary help must be given to that concern by the Government.

But the most desirable and really efficient and profitable way of helping the Indian glass industry would be for Government (assuming that Government does not wish to build and run their own factories) to select a well-equipped factory for training skilled labour in every province and to help it financially as under :

(*a*) By leasing the concern for a fixed period for a lump sum per year to be paid to the concern, financing it, and turning out the various requirements of the Government, their municipalities, etc., so that different branches of the art may be taught and developed easily without fear of serious pecuniary loss to Government and competition with other existing factories.

(*b*) Preferentially, by Government guaranteeing a certain interest, say not less than 7½ per cent. to the shareholders or proprietors of any concern the Government think of utilizing as a training institute, for a fixed period of at least ten years, by equipping that concern at Government expense with all up-to-date machines, etc., and with a good technical laboratory suitable for developing and teaching coloured glass manufacture, by selecting apprentices for learning and specializing in some branch of the manufacture of glass, and by handing over the concern to the original company after the stipulated period under arrangements for the return of Government outlay or the payment to the company of its outlay if it is not willing to pay for the Government outlay during the period of guarantee. In such a concern the following lines of the glass industry may be introduced :-

(1) Bottle making by machinery and by hand.

(2) Blowing by machinery as in Paris factories and in other countries.

(3) Bangle-making on the lines of the Austrian bangles with flashing, decorating, polishing, etc.

(4) Bead-making as a side industry.

(5) Press-work complete, including decorated glass panes of suitable sizes.

(6) Window glass manufacture in entirety on a small efficient scale.

(7) Ordinary mouth blowing under first class blowers to be taught specially.

From my own experience of this line under various trying and difficult conditions, I can confidently say that if any concern is run by Government directly even for teaching, there will be no pecuniary loss for the reasons that :—

(1) Good discipline could be easily enforced in a Government concern and the several experts and workers made to realize that they could not have that mastery in a

Government concern which they have in a private concern and which is the principal cause of the failure of glass factories in India. Government help and control and supervision will help the progress of pupils considerably and will turn out conscientious workers.

(2) The outturn could be utilized by Government without going to markets for sale and sufficient money realized to defray expenses of the concern. Any output not likely to be required by the Government could be sold in suitable markets, but Government should not compete with other existing factories in the matter of sales under any circumstance.

(3) The use of the Government forests, quarries of raw materials, etc., will save some expenses to Government and will compensate for some necessarily high expenses in working and training in the initial stages.

(4) Government can undertake any special work on a large scale in case of necessity which is always paying in such lines, which is not the case with private concerns which are, without any exception, under-capitalized.

*(Mr. Kanga did not give oral evidence.)*

### Witness No. 296.

Mr. E. M. Hodgson.

**Mr. E. M. Hodgson**, *Divisional Forest Officer, Belgaum.*

*Note.—The written and oral evidence of this witness is confidential.*

### Witness No. 297.

Mr. D. R. MacIntosh.

**Mr. D. R. MacIntosh**, *Chief Inspector of Steam Boilers and Prime Movers, Bombay Presidency.*

### Written Evidence.

#### *Training of Labour and Supervision.*

Mechanical engineers.

There is a want of uniformity in the standard of examinations for mechanical engineers held in the various provinces. Measures should be adopted to make the tests uniform and to make a certificate obtained in one province valid in all.

The system at present in force whereby each province issues its own certificate (which is valid only within the province, but which may be exchanged in some, but not all, of the other provinces) is undoubtedly a hardship on engineers. For instance, certificated engineers belonging to the Central Provinces and the Punjab are prohibited from following their calling in Bombay and those from the United Provinces or from any part of the world who hold certificates that are accepted in exchange in Bombay have to submit to delay in having their certificates exchanged before they legally can take up a post in this Presidency.

As a remedy for these ills I would propose that so far as India and Burma are concerned inter-provincial exchange of certificates should be done away with and be replaced by a certificate that would be valid anywhere in these countries.

Certificates where necessary.

The provinces which require certificated engineers to be in charge of steam boilers and prime movers are Bombay, Central Provinces, United Provinces, Punjab and Burma. Madras and Bengal do not require certificated engineers to be in charge of boilers and consequently have no examinations.

Bombay reciprocates with only one of the other provinces, *viz.*, the United Provinces, by recognizing its certificates although three of the other provinces recognize Bombay certificates. Burma certificates are accepted in Bombay but it appears that Burma does not recognize ours.

System in Bombay.

Bombay has had certificated engineers since 1873. At the present time all land boilers, except those pertaining to railways, those used for domestic purposes at atmospheric pressure, certain vehicular boilers and small boilers used for agricultural purposes, are required to be in charge of certificated engineers.

In this Presidency examinations of engineers are conducted by a board of examiners appointed by Government.

An inspector under the Boiler Inspection Act is excluded from serving as a member of such board.

*In the other provinces* which have examinations the Chief Inspector under the Boiler Act acts as secretary to the board and, except in the case of the Central Provinces, is also a member of the board.

The fact of an inspector under the Act having anything to do with the examinations was held in Bombay as lowering the standard of examination, because it was thought that the inspector in the course of his ordinary duties would come in contact with engineers and might be exposed to temptation which would lead to corruption in the conduct of the examinations.

Absence of reciprocity.

This condition, coupled with a doubt about the thoroughness of the examination, owing partly to the recent introduction of the examinations and partly to some failed Bombay candidates subsequently passing at Nagpur, had been, in the past, the principal reasons used against reciprocity with the Central Provinces.

The examination rules of the Central Provinces are the same as those of Bombay, and had it not been for the fact that the latter have been under revision and that they require a considerably higher standard than the present rules, I have no doubt but that reciprocity would have been granted ere this.

The United Provinces reciprocate with Bombay and with all the other provinces. Their rules were revised in 1915; the qualifications required of candidates for admission to the examinations are in the main practically similar to those of the Bombay revised rules. The mode of examination is similar to that of Bombay except in regard to the time allowed, which is only about one-third of that allowed by Bombay.

Punjab certificates are not accepted in exchange by Bombay. Previous to the revision of their rules in 1915 their standard of examination was low in comparison with that of Bombay, the qualifying service was not so high, the subjects of examination were fewer and a much shorter time was given for examination than was the case in Bombay.

According to their present rules the subjects of examination do not cover so wide a field as those of Bombay and the time allowed is much less, from which it may be inferred that the examination is less searching.

Certificates issued under the Burma Boiler Act are accepted in exchange by Bombay.

The examination rules are practically the same as those of Bombay and the examinations appear to be conducted in the same manner.

The foregoing to the best of my knowledge indicates the differences in standard where such exists. There is no radical difference in standard in any one province from that of another, and it ought not to be a difficult matter to introduce a uniform set of examination rules that would be acceptable to all.

But although a uniform set of rules for the conduct of examinations may be introduced in the various provinces, there can be, in my opinion, no uniformity in their application or interpretation unless there is central control; local differences would creep in and in a few years' time we should be as far apart as ever.

System of the Bo of Trade.

To obtain the desired uniformity of standard in examinations and certificates I cannot suggest a better system than that followed by the Marine Department of the Board of Trade at home, whose rules relating to the design and inspection of boilers and to the examination of engineers have been the model for all the Boiler Inspection Acts in India.

A marine engineer's certificate issued by the Board of Trade holds good in all the ports of the United Kingdom, the Colonies and India, and is accepted in exchange in all the provinces of this country having certificates for boiler purposes.

The Board of Trade system with regard to the examination of marine engineers is as follows :—

There is, amongst other heads of technical departments at the Consultative Branch Office of the Board of Trade in London, an Engineer-Surveyor-in-Chief, who is responsible for the direction of engineering matters. Under him is the Chief Examiner of Engineers whose duty it is to carry out the examinations throughout the Kingdom with the aid of the examiners stationed at the various ports.

The examiners are the engineer and ship-surveyors in the Board's service, one or more of whom are stationed at each of the large ports throughout the country, part of whose duties is the examination of engineers. Examinations are held weekly, fortnightly or monthly according to the requirements of each place, under the direction of the Senior Engineer-Surveyor of the port who may either conduct the examination himself or instruct one or more of his assistants to do so. The Chief Examiner in London makes out the mathematical papers and despatches them so that they arrive at the port where the examination is to be held on the morning of the examination. The papers containing the questions are opened by the examiner in the examination room in the presence of the candidates at the beginning of the examination. Neither the examiner nor the candidates know what the questions are.

The examiner gives out the papers and remains in the room during the whole time the examination is in progress. At the end of the allotted time he collects the papers and despatches them forthwith to the Chief Examiner who assigns the marks for each. The remainder of the written examination is dealt with in a similar way. The only parts of the examination for which the examiner is personally responsible are the conduct of the examination and the *viva voce* examination in practical knowledge.

The examination in practical knowledge is considered the most important part of the examination and it rests with the examiner whether the candidate fails or whether he passes.

System of examination in India.

This may, perhaps, be considered a weak point in the system, but even with our Boards of Examiners in India we have one examiner responsible for his own part of the examination. He sets his own questions and fails or passes his man for his particular part as he thinks fit without consulting his colleagues. There is no check on the individual examiner: he may set up-to-date or out-of-date questions and he himself decides on the answers given, whether rightly or wrongly nobody but himself knows. There is no check or scrutiny of the papers afterwards. The board does not sit collectively in examination of each candidate. The only collective actions of the board are when doubtful testimonials of service are put up for decision and when certificates are signed. In the latter case the six members of the board who officiate at each examination sign their names to each certificate certifying that the candidate has satisfied the board, whereas in reality the candidate has satisfied only one or perhaps two members, the other four or five members sign merely on the strength of their colleague's word.

The principle underlying the board is theoretically good, but in practice, as I have tried to show, its working is not so very far removed from that of a single examiner, with the difference that it lacks the efficiency and uniformity of the latter.

Suggested reform.

I am therefore of opinion that the most suitable system of examinations for India would be to have a Chief Examiner under the Imperial Government whose duty would be to direct the examinations in the various provinces, set and decide all the written parts of the examinations and check over the examiner's work. This would give the necessary uniformity and high class work that no other system could, and at the same time remove, so far as it is possible to remove, any suspicion of favouritism or unfairness in individual examiners, besides providing a wholesome check on them. The Chief Examiner would also satisfy himself of the fitness of an examiner by being present at the first examination conducted by such examiner, as is done by the Board of Trade, and would pay unexpected visits to the various centres during examinations as he might think fit.

With regard to the local examiners, I am of opinion from my experience of the Board of Trade system that the same system should be adopted in India. There are inspectors under the various Boiler Inspection Acts stationed throughout India who are competent to undertake the examinations. They are in touch with boilers and engines and the conditions under which the same are worked, which, in my opinion, is more of a qualification than a drawback in the case of an examiner of engineers. They are pensionable Government servants and as such have an incentive to act uprightly. Besides, under the supervision of a Chief Examiner in the system already outlined, much of the arbitrariness of the present member of a board of examiners would be removed.

The examination of engineers should be made part of the inspector's duties without any additional remuneration, subject to the condition that the pay of an officer appointed as examiner should be sufficient to attract the right type of man for the work. The examinations could be conducted by the Chief Inspector of Boilers for each province either by himself or with the help of one of his assistants.

But here in Bombay there is sufficient examination work to keep one man going and a whole-time examiner might be appointed. A proposal to this effect was put forward by a Departmental Committee appointed by Government a few years ago to consider the advisability of revising the examination rules and effect has been given to the recommendation in the amended Boiler Inspection Act now before the Legislative Council.

Need for uniformity in design and construction of boilers.

I have the honour to invite the attention of the Commission to another matter under the Boiler Inspection Acts, which is, that there is as much need for uniformity in the Boiler Inspection Rules in the various provinces with regard to the design and construction of boilers as there is in the case of engineers' examinations and certificates. This matter was brought to the notice of the Government of India before the outbreak of war, on complaints being made by boiler importers that, owing to differences in inspection rules and their application, boilers made by the same makers had to be built to different specifications for different provinces in India, and that what would comply in one case would not comply in another, thereby causing considerable inconvenience and expense to boiler owners and boiler makers and importers. Owing to the war the matter was shelved for consideration afterwards.

It will readily be understood that in technical matters such as the design and construction of boilers it is highly desirable that there should be one recognized standard for boilermakers to follow. A standard of some sort is necessary; without one our inspection of boilers would fail in its purpose, insomuch that an inspector would have to grant a certificate for any boiler so long as it appeared in good condition, and the boiler could be worked at any pressure the owner or his engineer thought fit, irrespective of its fitness for such pressure. Good, bad and indifferent boilers would thus have equal treatment to the encouragement of the bad.

Practically all Indian boilers are imported, mainly from Great Britain, some from America and some in the past were imported from Germany. Without a standard for the design, construction and material of boilers here in India we should soon be in the position already described.

Granted that a standard is necessary (boilermakers welcome such when it is clearly laid down what is required of them) it will be understood that if there is a different standard in each of the provinces in a country like India inconvenience and unnecessary expense to the people concerned are likely to follow. If the determination of standard or fitness is left to each individual inspector (as used to be the case in Bombay and which, I believe, is still the case in other provinces) even with the aid of rules to guide him, there would still be differences.

Judgment and experience in addition to the requisite technical knowledge are required in determining the safe working pressures for boilers. Many allowances have to be made which the rules only broadly provide for.

Need for central control.

I think, therefore, that to secure uniformity and continuity of practice there must be central control. There should be one officer (who might combine the duties of Inspector General of Boilers and Chief Examiner of Engineers) with the necessary assistance, under the Imperial Government, whose duty it would be to check over the work of the inspectors in the various districts and maintain a uniformity in the assignment of pressures to boilers and in the requirements regarding their materials, design and construction.

This is the system adopted by the Board of Trade, Lloyd's Register of Shipping and all Marine Insurance and Boiler Insurance Companies at home, and which, on a smaller scale, is giving satisfactory results in the Bombay Presidency.

Technical rules in Bombay should be followed throughout India.

The technical rules relating to these matters under the Bombay Boiler Act have been lately revised and brought up-to-date and abreast of the latest practice at home, and, as they are equally suitable for the other provinces, I would suggest that after their final acceptance in Bombay the Government of India might be pleased to circulate them in the other provinces for criticism preparatory to their adoption throughout India.

## ORAL EVIDENCE, 16TH NOVEMBER 1917.

*President.*—*Q*. I notice you say on the first page of your written evidence that you do not recognise the Central Provinces certificate because some of the candidates who failed in Bombay have gone to Nagpur and passed the examination there? I suppose the examination there is a little weak?—*A*. That is one of the reasons, but it is not the only one.

*Q*. Well, whatever the cause of the deficiency is, you have to admit that the examination there is not so severe, whether it is due to the form of the examination or other cause that does not matter much?—*A*. Personally I should think it is much the same as we have here at present.

*Q*. What the Central Provinces object to is that you do not accept their certificates here while they have accepted yours. Your proposal is that the whole of the regulations should be much more uniform; that there should be a Chief Examiner under the Imperial Government, and that he should also be the Chief Inspector of Boilers and Prime Movers under an Act that would be uniformly applicable to the whole of India?—*A*. Yes, that is my proposal.

*Q*. Do you think that the Local Governments will have any objection to an organisation of that sort?—*A*. I should not think so.

*Q*. Do you know anything about the orders regarding the delegation to Local Governments of powers to define their own regulations?—*A*. I know nothing at all about them.

*Q*. You cannot think of any way in which, if a central authority of the kind were established, that would interfere with the rights and privileges of the Local Governments?—*A*. No, I should not think so Everything can be smoothed over.

*Q*. Do you work in conjunction with the Chief Inspector of Factories, or are you separate?—*A*. There is no connection at all.

*Mr. G. A. Thomas.*—*Q*. You say that one of the reasons why Bombay does not accept Central Provinces certificates is because there the Chief Inspector is on the examination board?—*A*. Yes, that is the fact.

*Q*. You say, "The fact of an Inspector having anything to do with the examinations was held in Bombay as lowering the standard of examination." Is that your personal opinion?—*A*. No, I do not think it interferes with the standard of examination at all. Personally I should think it matters little; it is if anything rather the other way about.

*Q*. Later on in your suggestions as regards organisation for a central board you say "with regard to the local examiners, I am of opinion from my experience of the Board of Trade system that the same system should be adopted in India. There are inspectors under the various Boiler Inspection Acts stationed throughout India who are competent to undertake the examinations". You mean oral examination?—*A*. Oral as well as written.

*Q.* You say further that "they are responsible pensionable Government servants and as such have an incentive to act uprightly." The reason why Bombay Government do not put the inspectors on the examination board is exactly the opposite. But you think theoretically there is no objection at all ?—*A.* If we can get the right class of men, there should not be any difficulty at all. There is no difficulty as far as I know in the Board of Trade.

*Q.* Can you give any reasons why Burma certificates should be accepted here ? —*A.* The examination rules are practically the same, though so far as I can see from the correspondence we have not bothered as to whether the same standard is maintained or not.

*Q.* Are you aware of the fact that men who failed in Bombay have succeeded in getting certificates in Nagpur ?—*A.* Yes, there were two cases to my knowledge.

*Q.* How do the Bombay and Central Provinces standards compare ?—*A.* I know the present rules of each are practically identical and so far as I know the standards are also much about the same. In my opinion the Bombay standard is much the same as the Central Provinces standard at present, but when the new Bombay rules which are now under revision come into force, then the Bombay standard will be very much higher.

*Q.* Are you prepared to accept the Central Provinces certificates if they adopt the Bombay rules ?—*A.* Yes.

*Q.* You don't know whether the Central Provinces approached the Bombay Government in the matter ?—*A.* I think they approached it on more than one occasion, but when the rules are revised, then the standard becomes different.

*Q.* You propose a central authority and a uniform examination by a central authority ? *A.* I think that is the best way in which you can keep the thing uniform throughout. If you leave it to the Local Governments, they are bound to get away from uniformity.

*Mr. C. E. Low.*—*Q.* Do you remember when the Central Provinces Government began approaching you ?—*A.* In 1906, before I came out here.

*Q.* Do you know when the Bombay Government decided first of all to increase their standard ?—*A.* About 1911 or 1912.

*Q.* That is also my impression. In five years the boiler rules have been revised in the Central Provinces on the partial reason that the Bombay Government will not raise their standard ?—*A.* Yes, that is so.

*Q.* But still the Bombay standard has not been raised and is exactly the same as it was five years ago ?—*A.* That is probably owing to the time that has been taken to amend the Act. It has been going on for the last five years.

*Q.* So the Central Provinces will have to remain there presumably less efficient until it is finally decided what form the Bombay rules will take, by which time it is not impossible that the Bombay Government might in turn make some further amendment ?—*A.* I should not think so. I think everything is up to date.

*Q.* Do you think that these difficulties in the matter of standard will be got over by adopting a centralised system ?—*A.* Yes.

*Hon'ble Sir R. N. Mookerjee.*—*Q.* Have you any practical idea of the proposed central examining board ? How would you get over the difficulty of oral examination ? It is a most important item. *A.* We would have local inspectors. The idea is that the central authority through his assistants will go through the written part of the examination, but the actual conduct of the examination, both written and oral, at the different centres will be conducted by the local examiners.

*Q.* How many papers do you think they will set ?—*A.* At present there are two mathematical papers each having five questions and there are about the same number of elementary questions, and then under the new rules we propose to introduce a practical test and in addition to that we have got the oral examination, that is four different subjects.

*Q.* In regard to the written examination the questions may be printed somewhere in the head-quarters and the papers may be sent to the different examiners and the examination may be held on the same day in all the centres, there is no difficulty in this part but in the case of those candidates who will appear as mechanics for boilers you must examine the candidates more as to their practical experience ; so if the different provinces have their different men to examine don't you think there will be different tests by different examiners and the standard will not be same ?—*A.* There will be differences then.

*Q.* In that case the complaints you are now making will remain the same except that there is one central authority ?—*A.* That is the weak point in the system.

*Q.* How will you get over that difficulty ?—*A.* We can never do that unless we bring the local examiners under a central authority.

*Q.* What do they do in England ?—*A.* That is precisely the system that I want adopted here. They have their central authority, and his assistants conduct the examinations in the different parts of the United Kingdom once a fortnight or three weeks or a month as required.

*President.*—*Q.* The Chief Inspector could go round and take part in the oral examination and he will thus be able to conduct all the examinations in some uniform standard, that is what you suggest ?—*A.* Yes. They do so in the Board of Trade.

*Q.* At what intervals should the examinations be held ?—*A.* The number of examinations per year could best be determined after ascertaining the probable number of candidates and the number of examiners available for conducting the examinations. I think, should the work of examining engineers be undertaken by local inspectors in addition to their present duties, that the examinations should be spread more or less evenly over the whole year, say once a month in Bombay and perhaps every three months elsewhere, where there are not so many candidates. This would give a smaller number of candidates per examination—a necessary condition if there be only one examiner at each.

*Q.* What is the practice in Bombay ?—*A.* We have one every three months. We had I think about 500 candidates last year, and about five years ago we had about 1,200, but the other provinces may hold the examination only once or twice a year.

*Q.* If there is only one examination twice a year, then the Chief Inspector could conduct the oral examination in every province ?—*A.* He (the proposed Chief Examiner) need not visit every province, but need only satisfy himself that a certain standard is being maintained by the local inspectors and that they are following a recognised standard.

*Q.* Do you charge any fee here ?—*A.* Yes, Rs. 20 for 1st class and smaller amounts for the other classes.

*Q.* These fees are given to the examiners ?—*A.* The examiners are paid a fee of Rs. 50 per day for every day the examination lasts, out of the boiler fund, that is, the fees from the candidates are paid into the fund and the fund pays the examiners.

*Mr. C. E. Low.*—*Q.* This fund has been provincialised ?—*A.* Yes, last March.

*President.*—*Q.* We were told in Bengal that they have no examination, and they do not keep statistics of boiler inspections or explosions as they do here ?—*A.* That is probably the case.

*Hon'ble Sir R. N. Mookerjee.*—*Q.* In Bengal they generally appoint men on the merit of their certificates ?—*A.* I do not know very much about Bengal, but I think in the majority of large jute mills you have only marine engineers or rather men with marine engineer's certificates.

*Q.* In Bengal there is a large field for recruiting mechanics for working boilers, and there it is considered sufficient to see that the man who will be in charge of a boiler is a qualified man having a good certificate for such work ?—*A.* I do not know. It is all a question of making money with the owners in most cases. In Bengal they have not got any certificated engineers, but have Government examination of boilers. Here of course the thing started 50 years ago and has been acted up to ever since.

*Q.* Do you think the statistics are not worth much in comparing Bengal with Bombay in the matter of boiler explosions ?—*A.* Well, I do not think there have been more than two explosions in Bombay since the Act came into force some 50 years ago.

*Q.* You suggest that there should be uniformity in the matter of the design and construction of boilers ?—*A.* Yes. There is more reason for uniformity in that than in the case of engineer's certificates. As it is, there is a wide selection of types of boiler, you get all types of boilers everywhere.

*Q.* If there are different types of boiler, then one Boiler Act would not do ; you have got small boilers, you have large boilers ?—*A.* Yes, there are different types of boilers, large and small, of high and low pressures, but one Boiler Act could apply to all. It is the technical rules under the Act that differentiates between types of boilers.

*Mr. A. Chatterton.*—*Q.* What sort of practical examination have you for these certificates ?—*A.* We have not got a practical examination at present ; we intend to introduce such a condition when the rules come into force.

*Q.* Then what form does the examination take ?—*A.* At present we have got a set of mathematical questions releating to boilers and engines. There are also elementary questions to test the candidate's general knowledge about engines and boilers and their working.

*Q.* What difficulty will there be about a centralised examination ?—*A.* There will be no difficulty as far as I can see.

*Q.* Instead of sending examiners round the country, could you not conduct all the oral examinations in one place ?—*A.* That will be rather inconvenient to candidates who have to come from long distances.

*Q.* You just stated in answer to the President that no boiler certificates are required from the men in charge of boilers in Bengal and Madras. Would it not be better to abolish the examinations altogether and adopt the Madras and Bengal plan ?—*A.* I do not think it would be advisable to do so. Certificated engineers make for safety and the engineers themselves would wish to retain the system. There is no reason to stand in their way because you can thereby keep up a certain standard. I think even in Madras there are many engineers who hold Bombay certificates though they are not required to.

*Q.* Speaking about the strength of boilers, you say that practically all Indian boilers are imported mainly from Great Britain but some from America, and that each province has its own regulations regarding strength, design and construction of boilers; are not these rules a little old-fashioned and is there not a tendency to apply them too literally ?—*A.* Yes, the rules are sometimes too strictly applied.

*Q.* For instance, I had to deal with a case myself. I bought a boiler from a first-class American engineering firm, but it was condemned in Madras by the boiler inspector ?—*A.* It may have been the fault of the boiler.

*Q.* He produced his rules and said that some portions of the boiler had not been constructed in accordance with the English plan ?—*A.* That depends upon the individual inspector, that is one of the evils of having different inspectors in different provinces doing what they like.

*Q.* Supposing you consolidated the rules and had an all India Act under the control of a Chief Boiler Inspector, would it be advisable so to adapt the rules as to apply to boilers imported from America ?—*A.** No. I should not say so. American boilers are not so good as the British. We started boiler-making long before America did.

*Q.* What is good for America should be good enough for India ?—*A.* Not necessarily. In America they use a certain grade of steel which we don't use at all at home. That steel is manufactured by certain processes and is liable to develop certain special defects, it cracks and all that sort of thing, and to avoid such difficulties we won't have that steel at all, and they do the same in Germany. We use a special steel for boilers.

*Q.* Who is your final authority to settle these boiler rules ?—*A.* The Local Government.

*Q.* Have you any share in drawing up the rules ?—*A.* I generally draw them up, and then they are sent to local bodies and to the leading boiler-makers at home for their opinions.

*President.*—*Q.* You know that the insurance rates in Bombay are different from the insurance rates in Bengal ?—*A.* Which insurance ?

*Q.* Boiler insurance.—*A.* I do not think there is any great amount of insurance done in boilers in this Presidency. I cannot tell you anything about the rates.

*Q.* But would it not be a useful guide ?—*A.* I do not think there is any necessity at all for any legislation of the kind. There is very little insurance in boilers, they have a certain amount of faith in the boiler inspector and the certificate.

*Q.* You think it is more important to have a boiler inspected periodically than to have a certified engineer ?—*A.* Yes.

*Mr. A. Chatterton.*—*Q.* What happens if a boiler explosion takes place ? Is there any public inquiry ?—*A.* There is a public inquiry. We inquire into every accident that occurs, and if there has been any negligence on the part of the engineer we hold an inquiry under a certain section of the Act as to the negligence or misconduct of the engineer and deal with his certificate as we think fit.

*Q.* Is the boiler owner required to report any accident that occurs ?—*A.* They have got to report within 12 hours of the occurrence of an accident.

*Sir F. H. Stewart.*—*Q.* With reference to your suggestion about the appointment of an Inspector-General of Boilers and Chief Examiner of Engineers, would you suggest that if a central Imperial Industrial Department is formed, your Inspector-General should be a member there ?—*A.* I should think so.

*Q.* Where will he be stationed ?—*A.* He will have to be stationed with the Government of India.

*Q.* At Simla or Delhi ? Is that a practical suggestion ?—*A.* At present at Simla; of course they are too far off.

*Q.* His principal duties I take it would be to check all the calculations and to see that they comply with the rules; that is the main idea of having a central authority ? Would it not be sufficient to have a uniform Act for the whole of India ?—*A.* That would not do away with the necessity for the calculations. It really would not matter where the office is stationed so long as you have got one man to have all the calculations passed through him and to decide questions as to alteration of rules, that is you must have a man who knows his business.

*Q.* Will it involve any considerable increase of expenditure ?—*A.* I should not think so. If you have a staff in every province, the local chief inspector would not require the same pay as now.

*Q.* Would you suggest that there should be whole-time examiners ?—*A.* A whole-time examiner would command the confidence of the public.

---

* *Witness subsequently added*: In explanation I may say that boilers imported into this country from America got precisely the same treatment in the matter of pressure that boilers built in and imported from England do.

## WITNESS NO. 298.

### MR. J. A. WADIA, *Merchant, Bombay.*

### WRITTEN EVIDENCE.

Capital.

Government assistance.

I have been connected with the different industries in the city of Bombay for the last 28 years, and have been a promoter and a director of spinning and weaving mills, ginning factories, a flour mill and an oil mill, all of which must have originally cost about three crores of rupees and which require a crore of working capital. The oil mill and the flour mill with which I was connected proved failures owing to want of technical knowledge on the part of the agents and the directors, although another flour mill in Bombay then was in a flourishing state, and it was the success of this mill which enabled us to get the capital which we wanted. The capital in most of the spinning and weaving mills was mainly formed by the agents, the directors, and their friends. The public was always reluctant to subscribe, since people knew that it would take nearly three years before a mill began to earn and by the time the new mill was in a position to work full, the condition might change and the prosperous times might disappear. The investors are not willing to wait for years. Latterly this feeling has changed a bit, and I have seen that during prosperous years like 1906, 1913 and 1916, it has been possible to get a fair share of the capital from the public which has been willing to respond under the excitement of prosperous times. Of course, this could only be done by those firms in which the public have confidence, and there are not more than four or five such firms in Bombay. Although the spinning and weaving industry has been well established in India generally and in Bombay in particular, there is great want of knowledge on the part of most of the agents and directors who have no practical knowledge, and it is not easy to get the right sort of expert to advise you in time. I believe even now it is absolutely necessary to have official experts in spinning, weaving, dyeing and bleaching, to whom agents and directors may turn for advice and guidance. In the selection of machinery even, we are often hard hit, and several representatives of various machine makers who are only too eager to push their wares, would let you in. One might take years to know where and how to buy machinery. I, therefore, think that official experts are absolutely necessary to save time and money. If it is said that experience should be bought like everything else, by the time you get it your small capital might disappear, and one may be left with the experience but without the capital, and both are essential for the success of any industry. There has been always a dearth of skilled labour, and we had to import our carders, spinners, weavers, etc., from Lancashire. Nearly half of them, even when carefully selected in Lancashire, have proved failures. Some have been found incompetent, some, if competent, not sober. We have now in Bombay a fair supply of Indian skilled labour of this nature, but this supply is extremely limited, and the mill-agents take very little trouble to train such labour. I believe Messrs. Tata and Sons and, perhaps, one or two more, are the only people who have a regular system of apprenticeship, and men coming out of their Nagpur Mills have always commanded wages as high as Englishmen. A mill-agent is generally anxious to see his concern thrive, but in the prosperity of industry or of the country as a whole he hardly takes much interest. In Bombay it is a matter of common knowledge that mill-owners have passed resolutions under stress of circumstances which have never been carried out, and it has been found almost impossible to get them to adopt a common line of action for their own safety. Even to-day I find it is not easy to get a firm of architects to build a mill cheaply, and a great deal of money has been wasted in this way in the past. In spite of expensive English labour I am told that it is cheaper to build a mill in Lancashire than in Bombay. An official expert in this line also is desirable. Although we Indians talk a lot about the encouragement of industry, I have found that the Bombay Corporation has taken a particular delight in charging very high rates for water-supply to the mills. For domestic purposes a charge of four annas per thousand gallons is levied, for industrial purposes, eight annas, and at one time it was as high as twelve annas. No such charge is made in my part of the civilized world. It is admitted that a spinning and weaving mill does not consume much water, but this high rate has starved bleaching and dyeing mills to a very large extent. I do not think we have more than four such concerns in Bombay. Land in Bombay is rising in value, and one is often told that manufacturers should now go outside the town where more elbow-room for mills and men might easily be obtained. But this is more easily said than done. There is labour to consider; then there is the facility of transit; and above all, water, for which Government has made no provision outside Bombay. I, therefore, think that for the textile industry, for leather, sugar, flour, oil, jute, wool, and such other industries capital would be forthcoming, if there was an assurance that official experts were available and that Government were at our back. We must have complete confidence in the Government which unfortunately we have not, and you have only to look at the past history of the English and Indian Governments. We had an import duty for revenue purposes, it was reduced, I believe, in 1877, and abolished in 1882, by the House of Commons, and the late Mr. Gladstone, an out-and-out free-trader, said as follows:—

**"There is not a free-trade Government in this or in any country which has not freely admitted that the state of the revenue is an essential element in the consideration of the application**

even of the best principles of free-trade. With regard to remission for import duties there seems to me to be something distinctively repugnant in the way it has been done in the time of India's distress and difficulty. What an invidious, almost odious picture of inequality we exhibit to the millions of India. The free-trade doctrines which we hold so dear that we apply them against the feeling of the Indian people in their utmost rigour and without a grain of mercy, disappear in a moment when it is a question of dealing with those whose interests and opinions we cannot lightly tamper with, *viz.*, the free colonies of the Empire." I have given the above quotation in support of my statement that people should have absolute confidence in the Government in industrial matters, which they have not at present. Pioneer factories. I am in favour not only of Government help but also of Government putting up a factory, say, a sugar mill, or an oil mill, in order to show that it could be worked satisfactorily from a money making point of view. In such cases Government should have a board which should partly consist of Government representatives and partly commercial men to be selected by Government. I should also give such a board a share of the profit, so that they may have every inducement to work it economically and efficiently. When it is shown beyond doubt that the venture is a paying one, the Government should sell it to the public at the market price which ought to be a great deal more than the original cost. If that is not possible, Government should be entitled to have a share in the profits when the concern earns a certain nett return which may be fixed beforehand. Financing agencies. There are no banking facilities for industries at present, and an industrial bank in each Presidency town would be of great help At present, when times are prosperous you can get monetary facilities without trouble, but I have known some banks, and particularly *swadeshi* banks, to be very exacting. They are supposed to lend you money on liquid assets, and they pretend that they keep only 25 per cent. margin, which is high enough, but they value your stocks so arbitrarily that they practically have a 50 per cent. margin. I have known such banks who lend you one year 10 lakhs and withdraw the whole amount at the end of the period, the times having changed and the concerns for the time being not making much profit. Such methods of banking would lead more to bankruptcy than to industrial development. Such treatment is accorded more by Indian banks than foreign banks, which are more considerate.

One of the surest ways by which new industries could be developed would be, to my mind, the desirability of fostering and protecting existing industries in every possible way. To my mind, the Tata iron industry would not have seen the light of day but for the prosperity of the cotton industry in Bombay in the years 1905 and 1906, when large profits were realized. For 1905 the profits come to 3·47 crores and for 1906 to 3·14 crores. In 1913 cotton mills and several other new industries were easily floated in Bombay, as it was a prosperous year, and in 1916 several new concerns have come into existence without any trouble, owing to the prosperity of the iron and cotton industries. People are extremely anxious to venture their capital when they see a reasonable chance of success. As regards industrial banks, it might be said that most of the banks in Bombay or Calcutta are advancing money freely to industrial concerns. That is, no doubt, partially true, but as a rule they are anxious to lend on liquid assets which in times of adversity are not freely obtainable. Moreover, large banking institutions, like the Bank of Bengal and the Bank of Bombay, are precluded under their charters from lending except for very short periods, and I believe they are precluded altogether from advancing on debentures and such other securities. I may have 10 lakh rupees worth of debentures of a concern whose shares may be standing at cent. per cent. premium, and yet I may not be able to get any accommodation on them. Such restrictions ought to be removed and greater banking facilities should be created all throughout the country. Industrial banks, to my mind, do not and ought not to differ from ordinary banks, but I expect such banks to do more business with industrial concerns than otherwise. The existing banks, whether they are Presidency banks or Exchange banks, are doing business on a restricted scale as far as the industries are concerned.

ORAL EVIDENCE, 16TH NOVEMBER 1917.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* You say, "The oil mill and the flour mill with which I was connected proved failures owing to want of technical knowledge on the part of the agents and the directors, although another flour mill in Bombay then was in a flourishing state, and it was the success of this mill which enabled us to get the capital which we wanted." Before they started did they not get expert advice on it ?—*A.* We had a Board of Directors ; I was one of them. We went to the best people whom we thought were available at the time.

*Q.* Did you not get experts to work it ?—*A.* We brought a man from England to put up the thing and work it. We did not know the job and he did not know much either. We worked for a year or two and found that we were going to the dogs, and I insisted upon my co directors transferring it to the Bombay Flour Mill Co.

*Q.* What was that mill ?—*A.* It was called the Royal. It was 25 years ago ; it was a flour mill. Another oil mill with which I was connected proved a failure.

*Q.* Here in Bombay generally the capitalists form a Board of Directors before starting an industry, get experts and work it ?—*A.* You can do that for the cotton industry, but the flour industry was then carried on on a very limited scale.

*Q.* Your selection of an expert was not good ?—*A.* I don't know. Other companies like that failed, too, but they succeeded afterwards.

*Q.* Later on you say, " I believe even now it is absolutely necessary to have official experts in spinning, weaving, dyeing and bleaching, to whom agents and directors may turn for advice and guidance."

*President.*—*Q.* I would like to know what inference Mr. Wadia would wish us to draw from that ?—*A.* Even to-day I am approached by well-to-do Marwari bankers, who are wanting to start cotton weaving and spinning, and who know nothing about it. To whom are they to turn to for advice ? They absolutely do not know chalk from cheese. They are bursting with money, and want to use it. There are lots of agents, but if they get hold of the wrong man they are done for.

*Q.* Your inference is that Government should give technical advice to such people ?—*A.* Yes, I think so.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* Would you like the Government to give advice even in case of established industries like the cotton mills ?—*A.* Absolutely, because there are seven or eight makers. They all pretend that their machines are A-1. Who is to select for the man who is absolutely a novice ? I have been " done " myself with 15 years' experience. Now I have 25. When I had 15 years' experience I was " done " more than once.

*Q.* But the makers of the machine might object to the advice of the Government expert ? Also would it be wise, in view of the established mill concerns here, for Government to advise other people to start ? Would there not be unfair competition ?—*A.* But why should you consider them ? You have got to consider the industries in the country. Put them first. I would not think of them.

*Q.* That is your view ?—*A.* Yes.

*Q.* That being so, supposing a Government official advised some of your Marwari friends to go in for cotton spinning and cotton weaving, and that proved to be a failure for quite other reasons, wouldn't the Marwari investors come back to Government and say : " You have let us in for them ?"—*A.* I don't think so. If Government appoint really good experts, and if a man fails, it is no fault of Government.

*Q.* Aren't there a good many existing consulting engineers for mills now ; would they not give honest advice ?—*A.* They would only try to push their own wares.

*Q.* So your conclusion is that the Government ought to have a standing body of consulting engineers for cotton mills, as well as for industries not yet established ?—*A.* Yes.

*Q.* Even now, assuming there are different makers of machines, still there remains the fact that at one time they have one make of machine, and at another time another ; how are people going to select ?—*A.* You go to the expert and he gives the best of advice.

*Q.* You want an expert for the old industries which are established, as well as for the new ones ?—*A.* Yes.

*Q.* In regard to the following statement you make, I suppose you have, since making it, changed your views :—" In spite of expensive English labour I am told that it is cheaper to build a mill in Lancashire than in Bombay."—*A.* I don't think so.

*Q.* Not under the present circumstances too ?—*A.* Not taking into consideration war times ; but under normal conditions, before the war.

*Q.* Then with regard to the water question ; do you not think the Bombay Corporation is charging generally much higher rates than it ought to ?—*A.* Yes.

*Q.* And do you think that the supply of water for the people here is their first care ?—*A.* I am a member of the Bombay Corporation, and have been a member of the Water Committee. We took seven years to consider whether we should go in for duplication or not. Seven years only to consider ? Well, you can see how careless they must have been. They ought to have duplicated many years ago.

*Q.* You think bleaching and other industries suffer on account of the high rates ?—*A.* Yes.

*Q.* Do you think that for leather, sugar, jute and other industries if Government keeps an expert people will be induced to put their money in these industries ?—*A.* Yes, otherwise who is to help ?

*Q.* Should the experts be supplied by the Local Government or should they be from the Imperial Service ?—*A.* That makes no difference. Now the Tata Bank is going to have experts.

*Q.* Should Government also put up factories ?—*A.* Yes, in the case of new industries, as model factories, and afterwards transfer them to private enterprise.

*Q.* Should there be industrial banks in each presidency town ?—*A.* Yes.

*Q.* What capital do you think will suffice at the beginning ?—*A.* I think each bank should not have less than a couple of crores.

*Q.* Should the capital be entirely subscribed by the people or should the Government also help ?—*A.* Government should help by depositing money, but no guarantee for the interest.

*Q.* Do you think if Government deposits money, the industrial banks will be able to get the necessary capital ?—*A.* You have an instance before you of Tata's having got 7½ crores.

*Q.* Is there need of a Government bank also in every presidency ?—*A.* If you have other Tatas in other presidencies, no help would be required from Government.

*Q.* Take it for granted that in Calcutta and Madras there are no Tatas and Government wants to help industries in those parts of the country ; don't you think Government should start industrial banks ?—*A.* Government should not take up the share capital if they are satisfied that the affairs are in able hands. They should deposit a certain amount of money without interest.

*Q.* And should they also give expert advice to them ?—*A.* No expert would be required there.

*Q.* You want that the banks should have their own experts ; then why do you want Government experts ?—*A.* I don't want exclusively Government experts. If Tata's Bank is going to supply those experts, there is no necessity for it.

*Q.* That is all right for this presidency ; but for other presidencies, while there are local industries there is no commercial population.—*A.* I have said that Government should have experts.

*Q.* Suppose they started a bank, what scheme would you prefer ?—*A.* As I told you, deposits only.

*Q.* And should Government have their Directors on the Board ?—*A.* One or two. Supposing there are ten Directors altogether. I should have two from Government, and an auditor.

*Q.* Before financing industries how should they ascertain whether an industry is sound ?—*A.* They must do banking business. Supposing I was a banker, and some one came to me, I should be able to advise my Directors.

*Q.* What about the case of people who want to start new industries ?—*A.* The banker and Directors ought to be the best judges as to whether any aid should be given or not.

*Q.* Don't you think that the Government expert should advise whether the industry is going to be successful or not ?—*A.* The bank should take primary responsibility ; the expert should be only an adviser. I should only listen to the expert and use my own judgment. The expert's advice is necessary for guidance only.

*Q.* You think that the present presidency banks are not able to advance on the block ; they advance only on the liquid assets ?—*A.* They also advance on the block but to a very limited extent. They have not got enough funds.

*Q.* But they are able to advance for the imports that come to Bombay, like cotton, wheat ; and they make very heavy advances ?—*A.* But when you look at the capital and reserve funds, these banks could not be considered very large.

*Q.* Suppose the bank's primary object is to help industries only ; then the industries could be encouraged better ?—*A.* I don't say that banks should be started with the idea of helping industries only. I should run the bank exactly on the same lines that the Tata's are now proposing. In my written statement I say I want these banks to do the ordinary banking business also.

*Q.* You want a bank like Tata's to do exchange business, local shroff business and industrial business, and have Government balances. Don't you think the banks we have now like the Bank of Bombay could do that equally well. Unless there is a bank especially meant for industries, how can the industrial concerns be advanced ?—*A.* Supposing you have an industrial bank with a capital of one or two crores, and Government deposits 30 or 40 lakhs.

*Q.* That would be an extra presidency bank ?—*A.* No, an extra bank in the presidency.

*Q.* We have been in other parts of the country, and the general cry has been that people cannot start industries because they cannot get the capital. There are other banks, just like the Bank of Bombay, the Alliance Bank, etc., but they don't finance industries.—*A.* Because their capital is so small.

*Q.* Do you think that if there is a special industrial bank started in different presidencies, and Government help with balances and guarantee dividends, and supply experts, it will be possible to start industries. Don't you think that will help industries better and give them more stimulus ?—*A.* I don't think I would have a bank simply to advance money to industries and to nothing else. I should do a general business.

*Q.* Do you know anything about Japanese and German banks, how their Governments have helped them ?—*A.* I have seen in the papers that they have received help from their Governments. I should not care to do that here. It is not quite safe.

*Q.* Can you tell us how the difficulty in the way of accommodating mill-hands with chawls can be removed here ?—*A.* The first thing is that the Municipality should be compelled to improve their building bye-laws.

*Q.* That is, bring them in a line with the system prevailing in the Improvement Trust ? —*A.* Yes, or something like those of the Calcutta Corporation.

*Q.* Are the Improvement Trust and the Calcutta Corporation bye-laws both the same ? —*A.* I don't know, but we should have the same bye-laws for building as they have in Calcutta.

*Q.* But here if you build a chawl under the Improvement Trust bye-laws it will cost you Rs. 1,000, but under the Municipal laws it would cost only Rs. 500 ?—*A.* The Municipal Act is made by ourselves.

*Q.* Do you think the buildings built under Municipal laws are insanitary ?—*A.* Yes, our bye-laws are encouraging insanitary buildings.

*Q.* Are not the Corporation taking up this question ?—*A.* Not at all. I think they are most unsympathetic. I have been a member of that body for 18 years and know them well.

*Q.* If the Municipal bye-laws are improved, and changed to those of the Improvement Trust, in what way will it encourage the building chawls ?—*A.* You will have sanitary chawls.

*Q.* How can you remedy this evil of the mill-hands accommodation ?—*A.* I say if you have one set of bye-laws under which you would be prevented from building jerry buildings, whoever wants to build chawls must build sanitary chawls. The first thing is you must be prevented from building insanitary chawls.

*Q.* Do you think it ought to be made compulsory by an Act on employers of labour to give suitable accommodation to their hands ? *A.* I would not mind making it compulsory, if the Municipal bye-laws were altered.

*Q.* Similar to those of the Trust ?—*A.* Yes, make it obligatory that each mill should provide for one-third or one-half, and make it compulsory, I should not be sorry.

*Q.* Would that not be a hardship on the mills ?—*A.* Not in these times.

*Q.* There is another difficulty, and that is that many mills have not got near their own premises the land to build the chawls; how should this difficulty be removed ?—*A.* They should try and do the best they can.

*Q.* If the building of chawls is made compulsory, how could it be enforced ?—*A.* Some other arrangement then ought to be made.

*President.*—*Q.* Would it be possible to go a step further towards these socialistic arrangements and allow the Municipality to build the chawls, charging the mills in proportion to the labour they employ ?—*A.* You see, as regards the Municipality, the Improvement Trust wanted to repeal one of their sections to enable them to advance money for building these chawls. The Corporation opposed it. They said they would have nothing to do with it. The Government set aside that resolution of the Corporation, but the leading men opposed it.

*Q.* What were the reasons ?—*A.* Their reasons were not worth listening to. Their reason was that the millowners would make money out of these chawls, when they know very well that the Improvement Trust chawls would not pay them more than 2½ per cent. They are not liberal in their ideas as regards industries.

*Q.* Your great difficulty here is shortage of labour, consequently if we improved the conditions under which labourers are living, you might make mill labour more attractive. People might be more willing to make mill labour their living profession, so that by building suitable chawls for them, even if it cost the mill money, the mill might in the long run gain an advantage by attracting more labour.—*A.* Yes, I would make it obligatory on them.

*Q.* It is obvious that if one person only did it, it would lead to a certain amount of competition; but if somebody like your Municipality could realize the advantage to the whole city, and make it compulsory, would that not be possible ?—*A.* Why the Municipality ? The Improvement Trust are willing to build chawls for us under the amended section. They are ready to lend money on very equitable terms. They find that they are losing money by the building of sanitary chawls. They want us to do it with their capital, and but for the war we would have gone on with the scheme.

*Q.* If the chawls become the property of the mills that built them, are the labourers not likely to get the impression that if they go and live there, they become to a certain extent slaves of their employers, and feel that they are dependent, not only for their wages but for their housing, on their employers ?—*A*. I saw a mill man in my compound the day before yesterday and entered into conversation with him. He was living in a mill chawl and paying Rs. 3, and said he was very comfortable.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q*. Do you think that if suitable chawls are built for the mill-hands, these people will go to their country three or four times in the year ?—*A*. Yes, they will make money and go and spend it.

*Q*. They won't be stationary and will not be able to acquire skill ?—*A*. By going away they do not lose any skill; they only get rest.

*Q*. Then they will be shifting even if you built them sanitary chawls ?—*A*. So much the better for them and for us; they would come back refreshed.

*Q*. Some witnesses who have come before us told us that the millowners can jointly have a Research Institute for the mills. Do you think that is an appreciable proposition ?—*A*. It is a waste of money, if it is to cost a heap of money.

*Q*. Can you tell us your experience before the war; what were the real earnings on capital; what percentage ?—*A*. I was busy with that this morning, and I make out, taking everything into consideration, and going over 12 years, that you earn on your capital, after paying agents' commissions which are fat, and also depreciation, about 11 per cent. or 12 per cent

*Q*. In these war times too ?—*A*. I have not calculated this year.

*Q*. Two years before this ?—*A*. In 1905 the gross earnings were 3·47 crores in 1911 52 lakhs. Then in 1916 you again came to 3·12 crores. This is the gross profit, out of which you have to take 35 lakhs a year for commission and 60 lakhs a year for depreciation. I took the average capital of Bombay mills at 6 crores and added about 1¼ crores private capital, for which there are no returns, and I come to about 12 per cent.

*Q*. After deducting depreciation and commission ?—*A*. Yes, and adding 1¼ crores.

*Q*. You have taken these figures from the Millowners' Association ?—*A*. These are figures which I have been submitting in my annual report in the *Times of India* for the last twelve years.

*Q*. From the different balance sheets of the mills ?—*A*. I have come to these profits by examining 30 or 40 balance sheets and striking an average. I say there are about 80 mills with so many looms and so many spindles. I get the average. The average I make out to be 12 per cent. on the whole. If you don't add this 1¼ crores belonging to private owners, then it comes to a higher figure, but that would not be an accurate way of showing the profits. The average profit comes to one crore and 85 lakhs over a number of years; gross.

*Q*. When you talk of the fat commission you mean the quarter anna commission ?—*A*. The quarter anna commission is all but dead now.

*Q*. Do you think 10 per cent. a fat commission ?—*A*. It is very handsome.

*Q*. What do you think would be fair ?—*A*. I don't know. I could not tell that; if I was an agent, I suppose it would be a case of "the more the merrier."

*Mr. C. E. Low.*—*Q*. You say about 15 lines from the beginning of your evidence, "there are not more than four or five such firms in Bombay," in which the public have confidence, who could bring out a big flotation. How does that stand, proportionately, compared with the position of other countries ?—*A*. I could not tell that. There must be a very large number there.

*Q*. The amount of capital and the number of industries are also very large considering the amount of capital available and the amount of industries practised in Bombay. Is that a very surprising position that there are only 4 or 5 firms ?—*A*. It is.

*Q*. You say, "There has always been a dearth of skilled labour, and we had to import our carders, spinners, weavers, etc., from Lancashire." Is the number of those imported men proportionately tending to decrease ? Put out of the question the war period; were they previously tending to decrease and more Indians employed ?—*A*. I don't think it is increasing. The mills are increasing and native labour is getting more skilful every day.

*Q*. Then you say: "We have now in Bombay a fair supply of Indian skilled labour of this nature, but this supply is extremely limited, and the mill agents take very little trouble to train such labour." We were told by witnesses yesterday that, owing to the lack of efficient fitters and mill engineers, etc., the machinery of mills is run on a relatively low basis of efficiency, *i. e.*, replacements and repairs are not promptly executed.—*A*. It is more owing to bad supervision. If you have got indifferent carders or spinners, a machine gets out of level, and if not seen to in time, the machine will suffer.

*Q*. Is this state of affairs in that respect worse than in England ?—*A*. Of course it is.

*Q*. You speak of banks withdrawing loans at the end of one year, and say that "such treatment is accorded more by Indian banks than foreign banks, which are more considerate."

Is that possibly caused by the capital of the Indian banks being smaller ?—*A*. Why should they lend one year and withdraw at the end of the time ?

*Q*. They have not got so big a margin ?—*A* If I as a banker were willing to lend you 10 lakhs one year and withdraw it at the end of the year, it would lead to bankruptcy.

*Q*. But they have not got the same accumulated resources that large European banks have, perhaps ?—*A*. That may be, but they are not very willing to lend unless they are absolutely secure.

*Q*. Then they are more jumpy you think ?—*A*. I think so ; I think they are nervous.

*Hon'ble Sir R. N. Mookerjee.*—*Q*. If you build suitable housing accommodation for the labourers, I think they will have no objection to come and live there provided they have not to pay enhanced rent ?—*A*. Certainly they would not pay enhanced rent.

*Q*. And to provide such cheap accommodation in towns like Bombay or Calcutta, investors cannot expect to receive reasonable interest on their investment, if you let these rooms to these men at the rates which they are accustomed to pay.—*A*. What would you call " reasonable interest " ; one might consider 4 per cent. reasonable interest and another 9 per cent. not high enough.

*Q*. For example in a place like Bombay, if you buy land and build a house and if you charge them just the same rate of rent which they are at present paying, I am almost sure that these workmen would have no objection to come and live in those houses. But to do that millowners will have to provide funds from their profits, *i.e.*, they will have to set aside every year a certain sum from profit for that purpose. *A*. You see that difficulty is being got over by the Improvement Trust. They are willing to lend you money at a very low rate of interest and build chawls for the mills, which in about 28 years' time would belong to the mills, and the interest charges are very low.

*Q*. The mills in the last two years have been making enormous profits. In their own interests should they not set aside money to enable them to build these houses and allow their men to come and live there ?—*A*. This Improvement Trust scheme would have been very acceptable, but for the war. We were on the point of making use of the conditions and were going to utilize the funds which were being placed at our disposal by the Improvement Trust; but the war coming on upset everything.

*Q*. Why don't the millowners go in for it in right earnest ?—*A*. The Bombay mills have had a chequered career. They have not been always prosperous. Some of them are so indebted that they have not got capital enough to run their concerns. Some are overflowing with cash. Even in the case of Sir Fazulbhoy's own concerns, it is these good times that have put them on a better footing.

*Q* You don't consider that a feasible scheme ?—*A*. It is for those who can afford it. It is not every mill that is prospering. I know some concerns which are making 50 per cent. while others are making comparatively nothing.

*Q*. You want banks in every province for industrial purposes ?—*A*. Only in presidency towns.

*Q*. Do you consider it necessary that in every instance they must have expert opinion in order to advance money ?—*A*. If a man says he wants to start an oil mill or is interested in a flour mill, he should be advised as to whether it is a paying thing or not.

*Q*. If a scheme is put before a bank after the syndicate have gone into it first carefully the financing authorities should ordinarily be quite competent to deal with those matters ?—*A*. May be ; I cannot say in all cases.

*Q*. Expert opinion might be wanted in special cases only, not in every case where a bank has to advance money to an industry ?—*A*. No, if I was a banker I would look at the balance sheets of the industry wanting an advance to see what they had been doing for a year or two ; but that would not be helping the industry. In other countries you help industries through the fiscal policy. You have not got that policy here, then how to help them. These are therefore the methods I am suggesting. If you could do what Japan, Germany or America have done, it would be different. If I was starting an industry and had the fiscal policy to help while getting my experience, I could in time improve; but here I have not got that help.

*Mr. A. Chatterton.*—*Q*. You advocate the establishment of industrial banks. Is the position at all altered by the recent prospectus that has been issued regarding a large industrial bank in Bombay ?—*A*. For the city of Bombay, and possibly for the Presidency, they will supply the needs very nicely.

*Q*. Don't you think that their operations will probably extend ?—*A*. It is quite possible.

*Q*. In your opinion should this industrial bank or Corporation merely lend money, or do you think that it should pursue an active policy to promote industrial development ?—*A*. I think the former. I would restrict it to finance entirely.

*Q.* If you sink a certain amount of money in industrial concerns, you want a certain amount of floating capital at the same time to work these concerns. The rates at which advances are made for such floating capital are usually high, compared with other parts of the world.—*A.* Yes, it is so.

*Q.* If you established banks specifically to lock up money in industrial plant, you would have to increase at the same time your banking facilities to provide floating capital?—*A.* The capital of the bank and its credit would be enough for that.

*Q.* But if you pursue an active policy in respect to industrial development through industrial banks, and you propose to lock up a considerable amount of capital in block, you must provide at the same time further banking facilities for floating capital.—*A.* But those are liquid assets, easily obtainable anywhere.

*Q.* I want to know whether at the present time it is desirable to push this too rapidly; whether you have in the country sufficient available capital?—*A.* There is plenty of capital, if you can give the people security. If the people know their money is secure, and they are going to get a better return than from Government paper, they will jump in.

*Q.* If a bank locks up a large sum of money in long-term loans, some one must provide sufficient money for short-term loans to carry on business.—*A.* In the beginning I object to locking up large sums of money.

*Q.* That is the object of industrial banks.—*A.* The object is to give monetary facilities.

*Q.* Cannot you get the money from your ordinary banks now?—*A.* I am sorry we cannot. I had an experience only a month ago.

*Q.* What you really want are more banking facilities, not what is generally known as industrial banks.—*A.* I should say a bank with the avowed object of helping industries; but would not confine myself to that. Supposing I were a banker and two people came to me: one wanted an advance for his industry and the other for his business, and both were good parties. I would give preference to the industrial man.

*Q.* But in the case of a man who wanted money for an industry; are you going to lend it to him on the block or on his stocks?—*A.* A little of both. They are doing it today. You can get money from the bank without hypothecating your stock-in-trade.

*Q.* What you are really asking for now is that more banking facilities should be provided all over the country, but not of the particular type known as industrial banks?—*A.* I should only require Government to give them help, provided they lend themselves to this class of business.

*Sir F. H. Stewart.*—*Q.* You say you see signs of capital coming out more freely now. Do you say that times are now favourable?—*A.* I have noticed that for the last few years.

*Q.* Is it among investors generally, or among rich men only?—*A.* Generally.

*Q.* You think a lot of money will be forthcoming to form these industrial banks?—*A.* We had an experience only the other day.

*Q.* That is private enterprise entirely?—*A.* That would be a joint stock concern.

*Q.* You would like Government encouragement given in the way of deposit of balances, free of interest, and Government supervision furnished by Government Directors?—*A.* I would not say Government supervision, but that Government should have one or two Directors and an auditor.

*Q.* Are you proposing that Government balances should be withdrawn from the Presidency Banks for this purpose?—*A.* I should say so, because they do not lay themselves out for this kind of business.

*Q.* Is it not true that the balances in the Presidency Banks are subject to immediate withdrawal?—*A.* They are.

*Q.* In your evidence you say that the ordinary banks put industries to great inconvenience by calling in their loans. What would happen if Government required to call in their balances from your industrial banks. Would not the position be much more aggravated still?—*A.* Yes, if the Government did that. In what way then are you going to help?

*Q.* And do you think Government would be justified in this use of public money? In locking it up in industrial banks?—*A.* If Government is justified in promoting industries, it is.

*Q.* The Government requirements in all directions are very great. Money will be very dear for many years after the war, but you think that Government should forego interest on these balances?—*A.* Otherwise what other help can they give?

*Q.* Supposing that anything went wrong in the management of the bank, and that the Government money was lost. Do you think that would not be a great blow to the Government prestige?—*A.* Not to the Government prestige, but a great blow to the industrial bank. Government would not suffer, but the industries would suffer, and the industrial bank.

**Q. And the public would suffer very much, because Government would have to replace that money by fresh taxation?—A. That is public money; that is one of the risks which Government must take as do private individuals.**

*Q.* You say that you would put about 10 or 15 per cent. into block and the rest you would use for ordinary banking business, financing industries, etc. Would you allow your industrial banks to accept short-term deposits?—*A.* Why not? Without deposits how can a bank carry on business?

*Q.* Are you acquainted with the details of the Presidency Banks Act?—*A.* No.

*Q.* You have no specific suggestions to make then as to how they might be allowed to help industries more?—*A.* Yes, they should be permitted to lend money on debentures of joint stock concerns, if they considered that those concerns were quite good, and they should also be permitted to lend money for at least 12 months fixed. They are now doing it for three months, and give you a moral undertaking that they will renew it, but not a legal undertaking.

*Q.* You don't think that would meet the position, without having new industrial banks?—*A.* No, but it would help.

*Q.* In your last sentence you make a reference to the exchange banks; would you not say that their main function is the financing of foreign trade?—*A.* But they are lending very largely to local industries.

*Q.* You are not criticizing them for not doing more?—*A.* No, they are doing a lot, and treating us very fairly.

*President.*—*Q.* I think there was one answer you gave to Sir Francis Stewart which I probably did not understand, and may leave a misapprehension in my mind. You said you would take away from the Presidency Banks the Government balances and hand them over to these industrial banks. The Government balances are presumably kept as low as is safe for the ordinary financing of Government operations; so that if you handed this money over to an industrial bank, and that money was not obtainable by Government at short notice, you would have to make some provision for Government finances independently. You could not take away those balances from the Presidency Banks; they are there for a particular purpose. It is like my small money in current account with my bank.—*A.* They are at call no doubt, but I don't think that the Government has ever called them up. They have the right to do so.

*Q.* But Government would not be so foolish as to keep a larger sum there than would be necessary to meet their current obligations?—*A.* Surely Government has more than a few lakhs which they deposit in the Presidency Banks. I believe they deposit a great deal more than what they are required to do under the Act. Surely they might distribute that between two or three banks.

*Q.* They are required by the law to keep certain minimum balances there; that law is drafted on the understanding that that is a safe minimum; anything below that would incur financial danger. As I said, I keep a small quantity only in my current account?—*A.* But Government are depositing more than required in the Presidency Banks, and those balances might be diverted to industrial banks, otherwise how are you going to help?

*Q.* Am I correct in assuming that you think that the Government balances in the Presidency Banks ought to be handed over to these industrial banks?—*A.* Not altogether, but the surplus at any rate.

*Q.* You don't know enough about the conditions of the Presidency Banks to give us an idea of how much you would hand over?—*A.* I believe they keep two or three times as much as they are required. That might be withdrawn.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* Do you know how much Government has got in the Bombay Presidency Bank?—*A.* I have not got the figures. I have seen them. I was reading the other day Professor Keynes' book and he said they were keeping more than was required. I came across this little paragraph which rather interested me, with reference to industries occurring in the report of the Director of Statistics for 1915-16. He says "The abnormal conditions that have prevailed in the trade since the war cloud broke have developed the growing conviction that the country is far too dependent upon its export of raw products, and that these should be utilized to a much greater extent for industrial purposes within India itself. It has been an accepted axiom that the overwhelming dependence of her people upon agriculture—a dependence so serious in years of deficient rainfall—and consequent unemployment intensifying famine conditions should be lessened by the diversity of occupations which manufacturing activities bring." The great war has taken place in order to open our eyes to the advantage of having diversity of industries for the benefit of the country. We have gone on in this blind way for nearly 100 years, and this war seems to have opened our eyes to things which were lost to everybody years ago. This struck me as very remarkable.

## WITNESS NO. 299.

### *Ewart, Latham & Co., Agents, the Bombay Woollen Manufacturing Co., Ltd.*

### WRITTEN EVIDENCE.

Misdescription

We suggest that all woollen goods imported into this country should at the time of importation, and all woollen goods whether imported into or manufactured in this country, should, when exposed for sale, bear a stamp or label on each separate article indicating whether the goods are made entirely of wool or partly of wool and partly of something else (*e. g.*, cotton), thus :—

All Wool

or

Wool—25% Cotton.

Unless woollen goods, when exposed for retail sale, bear some indication such as we suggest, the buyer may be deceived into thinking that he is purchasing an article made entirely of wool when he is in reality getting an article composed partly of wool and partly of something else.

ail competition.

We have experienced competition on the part of the Government jail at Bhagalpur for contracts for the supply of Army blankets to the Supply and Transport Department. Preference was given to that jail in cases where we were ready to supply the requirements of the Department referred to. One of the principal objects for which our mill was established in 1888 was the manufacture of Army blankets for Government Departments; and this has for many years formed an important part of our trade. During the present war a very heavy demand has been made upon our mill for the supply of Army blankets, and though our factory has been working night and day we have not been able to keep pace with the demand. Had we not in pre-war times experienced jail competition, and feared the extension of it, we would probably now be in a position to meet more fully the demand for Army blankets and other war material.

The subject of jail competition was fully discussed in a letter addressed by Messrs. Binny and Company, Limited, Agents of the Bangalore Woollen Cotton and Silk Mills Company, Limited, to the Chairman, Chamber of Commerce, Madras, on 7th March 1910, a copy of which was forwarded with a covering letter, dated 20th April 1910, by the Chairman, Chamber of Commerce, Madras, to the Secretary to the Government of India, Finance and Commerce Department, Simla. We understand that no reply was ever made to the arguments adduced in these two letters (of which printed copies are enclosed herewith) against the use of power machinery in jails for the manufacture of goods in competition with old established private industry.

---

Dated Madras, the 20th April 1910.

From—The Hon'ble Mr. H. S. Fraser, Chairman, Chamber of Commerce, Madras;

To—The Secretary to the Government of India, Finance and Commerce Department, Simla.

This Chamber wishes to represent to the Government of India the serious effects of the competition of the State with private enterprise as exemplified in the operations of the Bhagalpur Central Jail, which have detrimentally affected the Bangalore Woollen, Cotton and Silk Mills, Limited, in this Presidency as well as, the Chamber believes, private mills in other parts of India.

2. At the Conference of Chambers of Commerce of the Empire held last year at Sydney there was passed a resolution in these terms :—" Whereas private enterprise has the right to be protected against the competition of articles manufactured by convict labour at an artificially lowered cost of production; and whereas there are indications of a tendency in certain parts of the Empire to develop the commercial element of jail labour to the injury of private manufactures, this Congress approves the principle that the produce of jail manufacture shall be used in Government service only, but in no case should power machinery be employed in jails for the production of articles of trade." It is mainly with reference to the development condemned in the last portion of this resolution, the employment of power machinery in jails, that the Chamber wishes to address the Government of India.

3. The introduction of power machinery means that the State is no longer competing with private enterprise merely with convict labour, but with means of production which greatly enhance the output of the jails. The effects of this development are felt both in the market for raw material and in the market for the finished product. The increased demand of the jails for raw material tends to raise the price for the private purchaser, and, indeed, as the

Chamber is informed, in some cases seriously limits the supply obtainable by the latter. At the other end of the process of manufacture, private enterprise finds itself undersold by jails working at much less cost than is possible for any private factory.

4. The extension of power machinery in the Bhagalpur Jail, and the Coimbatore Jail also, so far as known to the public, and the effect on their output are dealt with in detail in the accompanying letter from Messrs. Binny and Company, Limited, Madras, from which it will be seen how serious the effect of jail competition has been on the Bangalore mills. Those mills have lost much of their business with Government Departments, and though the Chamber does not wish to raise here the question of whether it is in accordance with public interests that the State's needs should be met from jail factories, it begs to recall to the notice of the Government of India the terms of their resolution quoted in Messrs. Binny and Company's letter (*viz.*, Home Department Resolution, dated the 22nd September 1882, paragraph 7), which is, in the Chamber's opinion, a complete refutation of the argument that the State gains by manufacturing its own supplies in jails. But apart from loss of business with Government Departments the mills have suffered by jail competition in the general market, both, as has already been pointed out, by the enhancement of the cost of raw material, consequent on increased demand by jails using power machinery, and by underselling of the manufactured article.

5. The Chamber is aware that the Government have endeavoured to limit the sale of jail-manufactured goods in the open market, but it submits that their endeavours have not been successful, and in fact cannot be successful, for the following reasons which are set out in more detail in Messrs. Binny and Company, Limited's letter. In the first place, there are always a certain number of rejections by Government Departments, which the jails must dispose of in competition with private enterprise. Secondly, the demands of the Army are very variable, and jails undertaking the contracts are therefore obliged to manufacture on a scale larger than that normally required by the Army, in order to ensure carrying out of contracts in the event of the maximum demand arising. They have thus, ordinarily, a considerable surplus, which again must be disposed of against private manufactures. Thirdly, convict labour must be kept employed, irrespective of any diminution in the demands of the Government Departments, thus producing articles for the general market. For all these reasons, a substantial proportion of jail manufactures, where power machinery is in use, must come into competition with the products of private mills in the open market.

6. Regarding the question from the point of view of the Jail Department, the introduction and extension of power machinery seems to the Chamber as objectionable as from the point of view of the private manufacturers, for, as has been noticed by the Inspector-General of Prisons of Bengal, in a report quoted by Messrs. Binny and Company, Limited, there is a tendency to lay too much stress on the commercial aspect of convict labour, in forgetfulness of the principle that jail labour ought to be before all things penal. If, however, the prisoner benefits while in jail by the exaction of this lighter work instead of penal task, he is released with much less chance of obtaining work near at hand than if he had been trained in a handicraft.

7. Finally, from the point of view of the general public, the Chamber submits that, as shown in the accompanying calculations, the saving effected by the State as the result of using power machinery is not merely small, but in great part illusory, and would almost, if not quite, disappear on an audit of the jail accounts on ordinary business principles. Even if it were otherwise, and a substantial profit were shown, the Chamber contends that, as set forth by the Government of India in the resolution already cited, it is only on a misapprehension of the relations of the Government and the people that such profits could be regarded as genuine gain to the former or genuine relief to the latter.

8. In the light of these considerations, and others adduced in Messrs. Binny and Company's letter, the Chamber respectfully and strongly urges on the Government of India the necessity of imposing severer limitations on the employment of power machinery in jails until such time as its use can be altogether suppressed.

---

Dated Madras, the 7th March 1910.

From—Messrs. Binny and Company, Limited, Madras;

To—The Chairman, Chamber of Commerce, Madras.

We desire to approach the Chamber in reference to the competition which the Bhagalpur Central Jail is carrying on with the woollen mills of India, and more particularly with the Bangalore Woollen, Cotton and Silk Mills Company, Limited, of which we are the Agents, Secretaries and Treasurers. The Coimbatore Jail is also competing with the Buckingham and Carnatic Mills under our management in Madras.

Appendix A.

The resolution recently passed by the Sydney Congress of Chambers of Commerce, of which we annex a copy, furnishes, we consider, an opportunity of re-opening the long-standing discussion regarding the jail manufactures of India. The main point in the resolution is the condemnation of the use in jails of power machinery for the production of articles of trade, and there can be no doubt that this is the crucial point of the entire discussion. A thousand prisoners working at the ancient handicrafts of the country are of little relative productive importance, but when the modern factory system is added and they become the mere attendants and servants of power-driven machinery, the situation is changed, and serious economic consequences follow. The output of finished material per labourer is enormously increased. Three men spinning wool on a power-driven mule will probably produce as much yarn in a day as four-hundred men spinning by hand. The competition with private enterprise is then by Government's machinery, and not merely by Government's criminals.

With only four private woollen mills of any magnitude in the country, a fifth, the Bhagalpur Central Jail, is a trade factor of very serious importance. Half the jails in India might weave blankets by hand with hardly noticeable results.

It is usually stated in justification of these installations of power-driven machinery in jails that they are designed solely for the supply of the requirements of other Government Departments; but we assert that no efforts, however sincere, on the part of Government, can prevent the steam-driven jail from competing with private manufactures in the markets of the country. In the first place, during the nearly thirty years in which jail manufactures have been the subject of resolution after resolution, Government seems never to have understood that, if a Government Department takes the finished products of a jail, it does not supply the raw material. The Army does not find Bhagalpur the wool for its blankets, and it is not likely to do so. The Bhagalpur Jail buys its wool in the open market in competition with the private manufacturer, and it does so under the usual limitation of a Government Department. Correspondents of ours gravely complain of the impossibility of purchasing wool in the districts in which the jail is operating, of the high prices paid and of the consequent demoralization for a considerable time of the market. They have to defer the obtaining of their own supplies until the jail requirements have been satisfied.

In any manufacturing industry the price paid for the raw material is plainly of as much importance as the sale value of the finished goods, and the action of a Government Department which affects the one is as prejudicial as if it affected the other. The steam factory system is the direct cause of these purchases, which would have been insignificant both in quantity and effect under mere handicraft employment. At the other end of the manufacturing process, the disposal of the finished goods, the Government of India has, ever since 1882, framed scheme after scheme to prevent competition with the private manufacturer. The failure of these schemes is proved by the continuance of complaint on the subject, and this failure has been, to our mind, inevitable under the conditions.

Consider the working of the Bhagalpur Jail. It has, first, a percentage of blankets which have been damaged in manufacture, or which have proved of light weight, or of insufficient length or width. A proportion of defective goods is inevitable in any factory; it is always considerable in a woollen mill. Such defective blankets will not be accepted by the Army and must therefore, apparently, be sold in the open market. Secondly, Army requirements vary greatly from year to year and the contracts for blankets are consequently made with a maximum double the minimum, the contractor being bound to supply any quantity within these limits. The jail must have plant and labour ready for the manufacture of more than the average demand in order to fulfil the conditions of its contracts. On the other hand, prisoners cannot be left idle and, as every practical man knows, idle machinery means a loss to the concern. There is every possible inducement to manufacture to the full extent and to dispose of any surplus to the public.

These considerations are very present to the minds of the jail authorities, though the decent veil of a desire for an increased departmental demand is thrown over the question.

Appendix C. 1901, 1902, 1903, 1908.

In the disposal of blankets which cannot be delivered to a Government Department, the jail is in practically the position of a manufacturer in a high import duty country who has satisfied his home demand. The jail's principal market is a protected one and, like the American or German producer, it can afford to " dump " its surplus goods.

It does so " dump " in the Calcutta market. We are told that we cannot sell our blankets there, because, as our Agents report to us, the Bhagalpur Jail habitually sells its 4 lbs. Native troops and followers' blankets at Rs. 2 each, less 2 per cent. discount for cash, or

Appendix D.

Re. 1-15-4 net, delivered in Calcutta. Our list price for the same blankets is Rs. 2-10-0, less 10 per cent. discount, or Rs. 2-5-9 net, Bangalore delivery for large quantities. We can only compete in Calcutta at a loss.

Appendix B.

The Coimbatore Jail not only makes no secret of its desire to sell to the public, but pushes the business by commercial methods. It issues printed price lists, and, until very recently prevented from doing so, offered credit to its customers. It is officially claimed that it only sells some 5 per cent. of its outturn in the general market, but it may be legitimately argued that its procedure shows that it would sell more in this way if it could.

The practical businessman and the political economist will agree that even a part of its outturn may easily be so sold as to prejudicially affect the Buckingham and Carnatic Mills, with which it competes. It is further officially claimed that the Coimbatore Jail directs its endeavours "in the direction of meeting the demands of the Government Departments." The jail some time ago installed expensive check looms. Government Departments do not use checks, and there could be no clearer proof of a deliberate intention to cater for the public market than the purchase of special looms to manufacture such cloths. We have brought this fact to the notice of Government without the slightest result.

See Jevons' Theory of Political Economy, 1871, p. 107.

It is no doubt the sincere desire of the Government of India that these factory jails should be prevented from competing in the open market with private manufacturing concerns, but their administration is part of the general administration of the country, they are a Government Department, and the first instinct of the bureaucracy is to defend them from criticism. The Inspector-General will support his Superintendent's action, the Local Government will justify the Inspector-General, and the Government of India will tell the petitioner, as they have told us, that no reasonable ground of complaint is disclosed.

It is, however, in regard to the supply of goods to the Supply and Transport Corps and to the Ordnance and Army Clothing Departments that the really serious injury has been done to the Bangalore Woollen Mills by the Bhagalpur Jail. Deferring for the present the question of the justification of the policy of displacing private enterprise in the supply of these branches of the Public Service, we may point out what the effect has been in our case. Ten years ago, the Bangalore Mills were doing a considerable trade in the supply of Army blankets in Bengal, Assam and the United Provinces. They have entirely lost this business for several years past, and are now not even given the opportunity of tendering against the jail. For many years the Company were practically the only suppliers of large quantities of cloth for followers' coats to the Army Clothing Department, and these contracts took an important fraction of their annual outturn. For two or three years past, although in the public tenders the Bangalore price has been invariably the lowest, the Department has not taken a yard of this cloth from the Company, and it is understood that the Bhagalpur Jail has furnished the whole quantity required.

The jail puts in tenders against the Bangalore Woollen Mills to the Supply and Transport Corps and Ordnance Department in Madras and for the largest of the blanket contracts in India, that at Lahore. The Bengal Jail Department has not hitherto been successful in securing contracts at these places, but it can afford to take almost any price, and will doubtless undersell us sooner or later.

The effect of the jail action has been that the woollen machinery at Bangalore is now only fully employed in exceptional years. In years of moderate demand much of it is stopped. During the last six months of 1909 only half the machinery of the mill was at work. The Army clothing contracts alone would have materially altered this condition of things.

The worst feature of the case to the private manufacturer is that the Bhagalpur Jail is steadily increasing its productive power, it seems to be always short sold and to desire a larger outlet for its manufactures, though ostensibly the appeal for custom is addressed to Government Departments only.

Appendix C.

The number of prisoners employed at Bhagalpur on manufactures rose from a daily average of 470 in 1895 to a daily average of 779 in 1908.

Appendix C.

The spinning and carding machinery of the jail was said officially to be equal to an annual outturn of 328,000 lbs. of yarn in 1900, in 1901 to 400,000 lbs., whilst 515,124 lbs. were produced in 1906, an increase of actual on estimated production of 57 per cent. in six years.

Appendix C. 1901 and 1906.

The Bhagalpur Jail writes off 10 per cent. per annum for depreciation, and, as far as can be made out from the published accounts, has in the ten years ending 1908 re-invested

Appendix B.

in block from this source Rs. 1,03,598. It would no doubt be maintained that this expenditure has been to replace worn-out machinery, but there can be no doubt that it means an extension of plant adequate to produce at least the increase shown above in outturn and in employment of prisoners.

The amount of private sales from the jail has not been stated in the reports since 1898, but the Jail Depôt in Calcutta is believed to do most of this business for Bhagalpur. The sales at the depôt increased from Rs. 85,541 in 1899 to Rs. 1,35,586 in 1906, a change in the form of accounts preventing a later comparison. Of the last named sum, it appears that Rs. 94,029 were cash sales, and presumably to private persons, sales to other Government Departments being, apparently, adjusted by transfer.

Appendix F.

We complained some years ago regarding the import of new machinery for the Coimbatore Jail and we were told that this was merely "the full maintenance of the Jail manufactory equipment then in existence." An interesting comment on this official statement is to be found in an article in the *Indian Textile Journal* for October, 1899, on the career of a certain Mr. Dewal, "Weaving Manager in the Coimbatore Jail Factory, where he was very successful during a period of nine years. The small weaving department of the Jail, with about 20 looms driven in a primitive method, was placed under Mr. Dewal at first, but it soon grew under his care, and he left it a decent-sized factory, housed in a specially erected weaving shed with about 100 power looms with an up-to-date equipment and driven by 100 H. P. steam engine by Messrs. Douglas and Grant, of Kirkcaldy, Scotland." It is a fair assumption that the *Indian Textile Journal* derived its facts from Mr. Dewal, and that they are reasonably accurate.

The Government of India requires "extensions of magnitude" in jail machinery to be submitted to it for sanction. Both Bhagalpur and Coimbatore appear to have made such extensions, but there does not seem to have been any such sanction obtained.

Appendix E.

Nothing could be more natural, or praiseworthy, on the part of the gentlemen in charge of these jails than the wish to improve the factories under their charge, but we do most strongly object to a system which permits the money of the State to be continually expended in larger means of competition with the private manufacturers. Unless checked, this expenditure will go on and will become more and more a serious economic factor. The example of Bengal and Madras has already led the Punjab to contemplate steam machinery in the jails of the province, and we may look for the same action in other parts of India. There is no security that such new jail factories will be limited to the industries already undertaken, and, once established, they will grow by the natural process of "replacements." The latest circular of the Government of India in 1906 appears to accept in principle fresh installations of steam machinery in jails.

The excuse for such installations will in each case be the supply of articles used by other Government Departments, particularly the great purchasing body, the Army, and a saving to the State by the employment of prison labour to supply its wants will be pleaded. As we show presently in the case of the Bhagalpur Jail, it is very probable that the alleged "saving" is actually a direct loss. In any case, a system which displaces an honest workman in Bangalore on wages of Rs. 8 to Rs. 10 a month in order that 10 to 12 annas a month may be saved on the maintenance of a prisoner at Bhagalpur can scarcely be said to benefit India, and in this calculation the effect on the shareholder, who has invested his money in the industries of the country, is left out.

The Government of Lord Ripon appears to us to have conclusively answered the whole argument that Government saves money by manufacturing its own supplies in jails. It is said in regard to the alleged saving of cost of maintenance of prisoners:—"It seems to the Governor General in Council that in that argument the fallacy is involved of only looking to the direct receipts paid into the Treasury, of separating the interests of the country from those of Government, and of supposing that any measure which checks the productive employment of capital, and, therefore, the accumulation of wealth in the country, can possibly benefit the Government. If Government, by its own action, hinders the productive employment of capital and, therefore, the accumulation of wealth, it must inevitably, by so much, render the tax-paying community less capable of bearing any burthens which may be imposed upon it."

Proceedings of Government of India, Home Department, 22nd September 1882, paragraph 7.

India is, we believe, the only country in the world which employs steam machinery in jails, or which justifies such employment for the supply of Government requirements. A Government controlled by public opinion would scarcely use such a pretext, and the fate of a British Ministry which turned on such grounds Parkhurst into a cotton mill, or Dartmoor into a woollen factory, would be sudden and memorable. The Socialist would condemn such a "nationalization of the means of production" as emphatically as any one, and it is not probable that the British elector would for a moment sanction the displacement of honest workmen by criminals.

Attendance on steam machinery has not the penal character which sentences to hard labour require, and this feature of the jail factory is emphasized in the report of the Inspector-General of Jails in Bengal, whose opinion on the matter should carry weight. Manufacture for the supply of other Government Departments does not in this particular benefit the case for the Jail Department. An ordinary mill-hand's life is a fairly easy one, easier, for instance, than that of the ordinary agricultural labourer in this country, and as about twice as many prisoners are employed at Bhagalpur for the same outturn as at Bangalore, the penal character of the place is evidently largely sacrificed to the idea of profit making.

Appendix J.

Nor, on the other hand, does attendance on steam machinery furnish the prisoner, on his discharge, with a trade by which he can earn an honest living. A handicraft, well learned, may do so, but a man who has been trained at Bhagalpur to work a woollen mule can only find similar employment at one of four woollen mills in widely distant parts of India. There is not the slightest probability that he will go to any of these other provinces for employment. His chance of reformation has been possibly sacrificed by the Jail Department of Bengal to obtain a doubtful return of 10 or 12 annas a month during his imprisonment, whilst he would probably have earned considerably more at a handicraft work which might have been subsequently useful to him.

Beyond these more general considerations of national policy, the Bangalore Company claim that they have a special grievance. The Bangalore Woollen Mills were expressly started for the purpose of manufacturing blankets and *jhools* for the Army, and they have specialized in this direction ever since, until they probably supply more blankets to Government in an average year than all the other private mills in India combined. Mr. Standish Lee, who founded the place, was, at first, greatly troubled by jail competition with his hand machinery, and there is extant much correspondence of his with Government on the subject. It was only in 1882, after the publication of Lord Ripon's resolution on the jail question, that he ventured to order some steam machinery from England, and we have a letter of his in which he gives this resolution as his reason for doing so. Further, on the flotation of the present Company in 1881, a circular was issued to intending shareholders on the prospects of the Company, and in this circular the resolution of 1882 was quoted as a point in the prospects of the undertaking. This resolution emphatically prohibited the use of steam machinery in jails, and it particularly instanced the spinning of woollen yarn by steam machinery as being a very objectionable form of jail industry. It was widely published and widely discussed, and there can be no question that its effect was that of a public pledge to investors that their industries should not in future be interfered with, and possibly ruined, by State-owned steam factories in jails. It is fully evident that the promoters and shareholders of the Bangalore Woollen Mills so regarded it, when, two years later, they established their Company.

The resolution, further, contains a most formal and solemn undertaking in regard to the supply of goods by jails to other Government Departments (paragraph 20): "The Governor-General in Council has decided that no obligation ought to be imposed upon other Government Departments to give a preference to jail manufactures over the goods of private dealers. The jails must be left to compete for custom upon equal terms with other suppliers."

Positive orders have, in the last few years, been issued by the Government of India that the purchasing Departments of Government are to give a preference to the jails, and Government in its last circular on the subject in 1906 lays down that the Departments must be compelled to take articles of jail manufacture as long as they can be supplied of the same quality and at the same price as in the open market.

Are not the shareholders in the Bangalore Mills, who invested their money in faith in the Government of India of 1882, justified in regarding the Government of 1906 as breaking that faith to their detriment?

Government might, in exactly the same way, publicly and formally encourage capitalists to build a line of railway and deliberately undertake not to compete with them, and then, ten or twenty years afterwards, run a new Government line alongside the old one. There could hardly be two opinions regarding such a step, and we fancy that public opinion would express itself rather strongly on the subject.

We claim that the Bangalore Woollen Mills are in the position of the original line of railway.

We have made an endeavour to ascertain what the real results of the working of the Bhagalpur steam factory have been and have, to that end, gone through the accounts, as given in the Bengal Jail Administration Reports for some thirteen years. Throughout these years two sets of alleged profits are annually displayed. "Cash profits" and "Net" or

Appendix H.

"Book Profits." On the first system, the larger the outstanding assets of the jail the smaller are the profits; on the second, the greater the undischarged liabilities, the greater the profits. This inept book-keeping gives no true results for a manufacturing concern, whilst the figures published are of the barest, and it is only by incidental statements in the reports that any opinion can be formed of what profit has been made by the machinery.

We shall presently show the unreliable character of the "Net" or "Book Profits, but as what information is given is principally under this head, we for the moment take the figures as given.

For the ten years ending 1908 the total cash profits claimed for the Bhagalpur Jail amount to Rs. 2,21,696, or an annual average of Rs. 22,170. The net profits for the same period are given as Rs. 4,86,389, or an annual average of Rs. 48,639.

Appendix H.

We have compared the results of the working of this steam factory jail with those of the other jails of Bengal, the most convenient way of doing so being that adopted by the Department of a comparison of the average annual earnings per head of all prisoners sentenced to labour. For the ten years ending 1908 for all the jails of Bengal, with the subsidiary jails and the jails transferred at the partition to Eastern Bengal up to 1903, this annual average was Rs. 34-15-0. Of these jails, Alipore has a steam jute mill and Buxar has some power loom weaving. The figures for the larger jails are:—Buxar Rs. 77-7-0; Alipore Rs. 56-1-0; Presidency Rs. 115-6-0; Midnapur Rs. 34-14-0; Hazaribagh (a jail stated to be very unsuited for manufactures) Rs. 24-6-9; Bhagalpur Rs. 28-13-0. This large steam factory has, therefore, on these figures, done worse than most of the large jails, and has not equalled an average which includes jails with a very small number of prisoners and in which the conditions for profitable employment are admittedly very unfavourable.

Appendix I.

But the case for the steam machinery at Bhagalpur is really very much worse than this, even on this "net profits" basis, for, in addition to the steam machinery, the handicrafts carried on in the jail are—Iron-work, Tailoring, Carpet-making, Carpentry, Mustard oil-crushing and "Miscellaneous." The total net profits for 1908 are Rs. 18,961-8-0 above the decennial average. Out of this sum, the first three handicrafts are said to have made Rs. 20,419. The others are not given, but, judging from a few figures in former years regarding them, it is probable that the woollen machinery made less than half of the total profit. It seems likely from figures scattered through the reports that the woollen factory employed about three-quarters of the prisoners and the handicrafts one-quarter. The earnings per head may therefore be divided into:—

| | |
|---|---|
| Handicraftsmen per head .. .. .. .. | Rs. 55-12-0 |
| Factory hands per head .. .. .. .. | „ 18- 9-0 |

In this calculation of the profits of the factory the only debits appear to be:—Raw materials, coal, oil, stores and depreciation. No supervision has, apparently, been charged, though we take it that, in superior establishment alone, the cost is some Rs. 2,000 per month, and a considerable proportion of this must be needed for the technical skill required. The subsistence and clothing of the prisoners are not debited, and there is, therefore, no wages list. There is no interest on capital, no rates and taxes, nor fire insurance, and none of the many minor expenses which fall on the private manufacturer.

On these very special terms, a concern having about the productive powers of our woollen machinery at Bangalore and favoured by a protected Government market for its outturn, succeeds in ten years' work in putting forward a dubious claim to an average return of saving in maintenance of its prisoners of about Re. 1-9-0 per month per head. That claim, however, requires further examination.

We have, so far, taken the jail accounts as issued for public information. As the alleged book profits for the ten years are more than double the profit received in cash, it is evidently desirable that we should see what has become of the difference. If these profits were really earned, they must have taken some tangible and material shape, and if they are not represented in cash, they should show in block, stock, or outstandings. They are in none of these things, and the solution of the problem was only found after an almost antiquarian research.

The profits have never been earned, they are mere estimates of what the results would have been had some other price than that actually received been obtained by the jail. "All work done is valued at market rates."

Appendix H.

The effect of this procedure is, as shown above, to more than double the cash profits over ten years, whilst in the years which follow the differences are:—

| | | Rs. | | Rs. |
|---|---|---|---|---|
| 1906, | Cash Loss .. | 17,643 | Book Profit .. | 40,529 |
| 1907 | Do. .. | 14,881 | Do. .. | 26,406 |
| 1908 | Do. .. | 3,143 | Do. .. | 48,961 |

So that a loss of Rs. 35,667 becomes a profit of Rs. 1,15,896, or a difference between the two systems of account of Rs. 1,51,563, which seems very convenient and useful.

The Profit and Loss Account of the Company promoter's prospectus is frequently made out on the basis of this kind.

We are afraid that we must decline to attach weight to these pseudo-profits, and that we must take it that all that the accounts really prove is that over ten years the jail has averaged about Rs. 22,000 a year in cash profits and that it has made considerable losses for the last three years of the period.

Subject to all the limitations already detailed, it would seem that the woollen factory has really been giving not more than 11 to 12 annas per prisoner per month, probably nearly enough to pay the salaries of the technical experts engaged in the factory.

The Bengal Jail Reports themselves and the figures already cited, even if reduced, as they should be, to "Cash Profit" terms, conclusively show that the prisoners employed in the woollen factory would have made far larger profits working at handicrafts in their own or some other jails, and that, if the Government of Bengal wishes for a remunerative return from its criminals, the sooner it gets rid of the steam machinery at Bhagalpur the better.

If the Government of India would have the accounts of these manufacturing concerns subjected to a proper commercial audit, say by a Calcutta Chartered Accountant, we are convinced that there would very soon be an end of steam machinery in jails.

We believe we have shown that serious injury is being done to the private woollen mills of India by the Bhagalpur Jail, to the disadvantage of India as a whole, and we think that the Chamber will agree with us that no compensating advantage is obtained by Government in return. Treated as a commercial undertaking, the jail results are contemptible, whilst the system is a failure both as regards penal discipline and the reform of the criminal.

We trust that the Chambers of Commerce in India will unite in pressing on the Government of India, and, if necessary, on the Secretary of State for India, the acceptance of the principle laid down by the Sydney Congress of Chambers of Commerce, that "in no case should power machinery be employed in jails for the production of articles of trade."

Secretaries and Treasurers, the Buckingham Mill Co., Ltd.

Secretaries, the Carnatic Mill Co., Ltd.

Agents, Secretaries and Treasurers, the Bangalore Woollen, Cotton and Silk Mills Co., Ltd.

## APPENDIX A.

### RESOLUTION ON JAIL MANUFACTURES AS FINALLY ADOPTED BY THE SYDNEY CONGRESS.

Whereas private enterprise has the right to be protected against the competition of articles of trade manufactured by convict labour at an artificially lowered cost of production ; and whereas there are indications of a tendency in certain parts of the Empire to develop the commercial element of jail labour to the injury of private manufacturers, this Congress approves the principle that the products of jail manufacture should be used in Government services only but in no case should power machinery be employed in jails for the production of articles of trade.

## APPENDIX B.

### EXTRACT OF LETTER FROM THE INSPECTOR-GENERAL OF PRISONS, MADRAS, TO THE ACTING DIRECTOR OF INDUSTRIES, MADRAS.

The entry in red ink to which you refer as appearing in Jail bills, *viz.*, that 12 per cent. interest will be added if the bill is not settled within a given time, will be expunged when the forms next come to be printed. It is now some months since I issued an order that the cash system was to be introduced generally and that the credit system was to be stopped.

Sales to the public are comparatively few and seem to be growing fewer year by year. Our endeavours are in the direction of meeting the demands of Government Departments. I speak from memory and, as far as it serves me, only something like 5 per cent. of the output of the Coimbatore Jail finds its way into the private market.

## APPENDIX C.

### EXTRACTS FROM THE ADMINISRTATION REPORTS OF THE JAILS OF BENGAL IN REGARD TO OUTLET FOR THE MANUFACTURES OF THE BHAGALPUR JAIL, ETC.

1895.—"Notwithstanding the smaller daily number available for manufactures the outturn for the Woollen Factory has considerably increased. * * * * The Superintendent of Jail Manufactures has recommended a new engine for the Woollen Factory with a view to lessen the manufacturing charges."

1896.—"The outturn of blanketing has been considerably increased and is a record."

1898.—"The Bhagalpur Jail with its excellent machinery and its skilled staff is capable of turning out a much larger amount of work than it does, and I trust that the Ordnance and Commissariat Departments will be induced to place further contracts with the Jail."

1899.—"Most of the work done is for the Commissariat and Ordnance Departments; the rates allowed are not very liberal, but they have to be accepted in order to keep the mills employed, and to find work for the prisoners. The mills were not always worked to the full capacity during the year."

1901.—"Year by year the price of goods supplied to other Departments from this Jail is being reduced, but it is considered good policy to accept any contract that offers a margin of profit, in order to supply work for the prisoners and keep the mills as fully employed as possible. * * * * During the year great part of the carding machinery was renovated with the result that the outturn of yarn was increased from 4,000 to 5,000 maunds, while there was also an improvement in the quality. Owing to the better quality of the yarn the outturn in the weaving department was also increased by 500 maunds."

1902.—"The amount of orders received and work obtained did not keep the factory fully employed, and so early in the year as May great difficulty was experienced in finding work to keep the machinery employed. * * * * It is very much to be regretted that the Army and other Government Departments do not make more use of the jail factories in Bengal. We are willing to supply blanketing from Bhagalpur at any reasonable rate equal to that of the open market. Offers were made to this effect, and we were informed that no 'preferential treatment' in our favour was possible; on the other hand, we are debarred from underselling the open market. If the heads of the Army and other Departments would realize that money paid to jails for work done is a gain to Government, and that for prisoners to do plenty of Government contract work means reduction in cost of upkeep of jails and a lesser burden on the tax-payer, much good might be done. Government has invested large sums of money in these jail factories and we can only look to Departments of Government for support. We are not allowed to undersell the public, but when a Government factory tenders for the supply of articles at a price equal to that obtainable in the open market, I think that some degree of preferential treatment is desirable, and would result in an undoubted saving of money to Government as a whole without prejudicially affecting the Budget of the indenting Department."

*Note.*—The fallacy in the Inspector-General's argument, his ignoring the country "as a whole" in his consideration of "Government as a whole," was well exposed by the Government of India in their Resolution of 1882, paragraph 7:—"Another, and more important rejoinder may be made to the argument now under discussion. It seems to the Governor-General in Council that in that argument the fallacy is involved of only looking to the direct receipts paid into the Treasury, of separating the interests of the country from those of Government, and of supposing that any measure which checks the productive employment of capital and, therefore, the accumulation of wealth in the country, can possibly benefit the Government. If Government by its own action hinders the productive employment of capital and, therefore, the accumulation of wealth, it must inevitably, by so much, render the tax-paying community less capable of bearing any burthens which may be imposed upon it."

1903.—"The capacity of the woollen factory of this jail is 1,800 blankets a week, and in order that Government may obtain the best results, it is necessary that this number, or something approaching it, should be turned out."

"*Miscellaneous.*—In paragraph 6 of his Resolution on the Report for 1902, His Honour the Lieutenant-Governor of Bengal expressed his preparedness to address the Government of India on the question of the supply of blankets to the other Departments. As Major Buchanan, I. M. S., proceeded on leave, it was subsequently decided that the matter should be left till his return. There can be little doubt that the proper outlets for jail-made articles are the consuming Departments of Government. The orders at present in force are that Public Departments should take their requirements from jails, provided the Jail Department can supply them at the same price and of the same quality as obtained in the open market, and jails are prohibited from disposing of their goods for less than the market rate. Furthermore, Public Departments are prohibited from calling for tenders openly for such articles as the Jail Department can supply. These Departments, as might be expected, endeavour to obtain their requirements at the cheapest rates, and the Jail Department, in its desire not to undersell the blanket, often quotes rates which are not accepted, in ignorance of what the lowest market rate is. In this way orders are lost. If the Public Departments, before placing their custom elsewhere, would enquire whether jails were prepared to supply them at the same rates for the same quality article, there would be no lack of orders and such as the Jail Department could not undertake could be offered to the public."

1906.—" **The machinery has not been worked to its full capacity owing to a lack of orders from Government Departments. But the carding and spinning departments have been fairly well employed. The amount of yarn made was 6,282 maunds against 6,097 maunds in 1905.**"

1908.—" **The factory was fairly employed but not to its full capacity. The outturn of yarn was 4,844 maunds as compared with 6,282 maunds in 1907. * * * * It is eminently desirable that more Government Departments should give orders to this and other manufacturing jails and we are willing to take up more.**"

***Resolution of Lieutenant-Governor.***—" The Lieutenant-Governor agrees with the Inspector-General that in the general interest of the public all orders on behalf of Government should, when possible, be placed with the Jail Department."

## APPENDIX D.

### EXTRACT FROM LETTER OF CALCUTTA AGENT TO THE BANGALORE WOOLLEN, COTTON AND SILK MILLS CO., LTD., DATED 4TH DECEMBER 1909.

" Since the despatch of my last letter on the 2nd instant I visited some of the leading dealers in blankets. It seems these people are well supplied by the Bhagalpur Jail, the quality Foll: Blankets, 4 lbs., of which I have already posted you a sample, appearing to be the favourite of the trade. Dealers assured me they buy these regularly at Rs. 2 per cent. delivery on the spot and less Rs. 2 per cent. for cash."

### EXTRACT FROM LETTER STATED TO HAVE BEEN RECEIVED IN CALCUTTA FROM SUPERINTENDENT, BHAGALPUR JAIL.

(*Date of letter not given, but in November 1909.*)

" I beg to send herewith two sample blankets with their size, weights and prices noted therein for your inspection and selection. I have reduced my quotation for the same considering you are willing to take 2,000 blankets if approved."

| | ft. | | ft. | | lbs. | Rs. | a. | p. |
|---|---|---|---|---|---|---|---|---|
| B. T. Blanket .. | 7½ | × | 5 | weighing | 4¾ .. | 3 | 8 | 0 |
| Foll: Blanket .. | 7 | × | 4½ | do. | 4 .. | 2 | 8 | 0 |

If ordered, the blankets will be delivered next month.

## APPENDIX E.

***Plant and machinery of Bhagalpur Jail and estimated expenditure on renewals and extensions as worked out on a basis of 10 per cent. allowance for depreciation.***

" (The usual 10 per cent. deduction for depreciation of plant and machinery has been made " in Jail Administration Report for Bengal, 1895.)

| | | Plant and Machinery. | Apparent expenditure on renewals. |
|---|---|---|---|
| | Rs. | Rs. | Rs. |
| 1899 .. .. | | 1,22,933 | |
| 1898 .. .. | 1,25,752 | | |
| Less 10 per cent. .. | 12,755 | 1,14,797 | 8,136 |
| 1900 .. .. | | 1,20,032 | |
| 1899 .. .. | 1,22,933 | | |
| Less 10 per cent. .. | 12.293 | 1,10,640 | 9,392 |
| 1901 .. .. | | 1,17,485 | |
| 1900 .. . | 1,20,032 | | |
| Less 10 per cent. .. | 12,003 | 1,08,029 | 9,456 |
| 1902 .. .. | | 1,16,077 | |
| 1901 .. .. | 1,17,485 | | |
| Less 10 per cent. .. | 11,749 | 1,05,736 | 10,341 |
| 1903 .. .. | | 1,14,270 | |
| 1902 .. .. | 1,16,077 | | |
| Less 10 per cent. .. | 11,608 | 1,04,469 | 9,801 |
| 1904 .. .. | | 1,08,192 | |
| 1903 .. .. | 1,14,270 | | |
| Less 10 per cent. .. | 11,427 | 1,02,843 | 5,349 |
| 1905 .. .. | | 1,04,167 | |
| 1904 .. .. | 1,08,192 | | |
| Less 10 per cent. .. | 10,819 | 97,373 | 6,794 |
| 1906 .. .. | | 1,12,106 | |
| 1905 .. .. | 1,04.167 | | |

| | | Plant and Machinery. | Apparent expenditure on renewals. |
|---|---|---|---|
| | | Rs. | Rs. |
| Less 10 per cent. .. | 10,417 | 93,750 | 18,356 |
| 1907 .. .. | | 1,07,898 | |
| 1906 .. .. | 1,12,106 | | |
| Less 10 per cent. .. | 11,211 | 1,00,895 | 7,003 |
| 1908 .. .. | | 1,16,078 | |
| 1907 .. .. | 1,07,898 | | |
| Less 10 per cent. . | 10,790 | 97,108 | 18,970 |
| | | Total for 10 years | 1,03,598 |

EXTRACT FROM GOVERNMENT OF INDIA PROCEEDINGS, 7TH MAY 1886.

"The existing arrangements with regard to steam machinery in the jails of the Lower Provinces of Bengal will not be disturbed, but His Excellency in Council desires that, in the event of any extension of such machinery being contemplated in that or any other Provinces, the considerations above set forth will be carefully borne in mind by the Local Government or Administration concerned, and in the case of any extension of magnitude, that the sanction of the Government of India will be previously obtained."

The outturn of the spinning machinery of the Bhagalpur Jail was increased from an estimated capacity of 4,000 maunds in 1900 to an actual outturn (probably less than the estimated capacity) of 6,282 maunds in 1907, distinctly "an extension of magnitude," but there is no evidence that the Government of India was even cognizant of this increase, much less sanctioned it.

## APPENDIX F.

SALES AT THE JAIL DEPOT, CALCUTTA.

| Year. | Total. | Cash. |
|---|---|---|
| | Rs. | Rs. |
| 1899 .. .. | 85,541 | not stated. |
| 1900 .. .. | 90,139 | do. |
| 1901 .. .. | 94,317 | do. |
| 1902 .. .. | 92,587 | do. |
| 1903 .. .. | 95,200 | do. |
| 1904 .. .. | 1,24,749 | do. |
| 1905 .. .. | 1,23,562 | 91,842 |
| 1906 .. .. | 1,35,586 | 94,029 |

1907-08 system changed, figures not comparable.

The considerable proportion of cash sales will be noted. These are, apparently, not sales to other Government Departments, which are adjusted by transfer. How much represents blanket sales from Bhagalpur Jail it is, of course, impossible to say.

## APPENDIX G.

PRISONERS EMPLOYED ON MANUFACTURES AT THE BHAGALPUR JAIL, DAILY AVERAGE.

| Year. | No. | |
|---|---|---|
| 1895 | 170 | |
| 1896 | 504 | |
| 1897 | 500 | |
| 1898 | 605 | |
| 1899 | 719 | Blankets 557 ; carpets 48 ; bricks 43 ; tailors 4. |
| 1900 | 705 | |
| 1901 | 782 | Blankets 571 ; carpets 30. |
| 1902 | 764 | Blankets 596. |
| 1903 | 649 | Blankets 507. |
| 1904 | 691 | |
| 1905 | 757 | |
| 1906 | 733 | |
| 1907 | 715 | |
| 1908 | 779 | Iron-work 72. |

## APPENDIX H.

### BALANCE SHEETS OF BHAGALPUR JAIL FOR . . . . 1908, SHOWING PROFITS AND NET OR BOOK PROFITS.

*Cash Profits.*

| *Debits.* | Rs. | a. | p. |
|---|---|---|---|
| Cash Balance on Manufacturing Account, January 1st, 1908. | 280 | 8 | 0 |
| Cash drawn in 1908 on Manufacturing Account .. | 1,94,558 | 1 | 0 |
| Total .. | 1,94,838 | 9 | 0 |

| *Credits.* | Rs. | a. | p. |
|---|---|---|---|
| Paid into Treasury on Manufacturing Accounts .. | 1,91,475 | 7 | 0 |
| Cash Balance on do. do. .. .. | 219 | 13 | 0 |
| Balance, loss .. .. .. .. | 3,143 | 5 | 0 |
| Total .. | 1,94,838 | 9 | 0 |

*Net or Book Profits.*

| *Debits.* | Rs. | a. | p. |
|---|---|---|---|
| Cash in hand end 1907 .. .. .. .. | 280 | 8 | 0 |
| Manufactured articles, end 1907 .. .. .. | 70,363 | 13 | 0 |
| Raw Material do. .. .. .. | 80,681 | 11 | 0 |
| Outstanding bills due to Jail, end 1907 .. .. | 2,961 | 14 | 0 |
| Plant and Machinery do. .. .. | 1,07,898 | 1 | 0 |
| Cash drawn in 1908 .. .. .. .. | 1,94,558 | 1 | 0 |
| Balance, net or book profit .. .. .. | 48,961 | 8 | 0 |
| Total .. | 5,05,705 | 8 | 0 |

| *Credits.* | Rs. | a. | p. |
|---|---|---|---|
| Cash in hand, end 1908 .. .. .. | 219 | 13 | 0 |
| Manufactured articles, end 1908 .. .. .. | 87,800 | 6 | 0 |
| Raw material, do. .. .. .. | 74,349 | 4 | 0 |
| Outstanding bills due to jail, end 1908 .. .. | 4,544 | 15 | 0 |
| Plant and machinery do. . .. | 1,16,077 | 13 | 0 |
| Amount paid to treasury in 1908 .. .. .. | 2,22,713 | 5 | 0 |
| Total .. | 5,05,705 | 8 | 0 |

(Figures taken from Report for 1908.)

EXTRACT FROM REPORT FOR 1908, REGARDING ABOVE.

"The working of the factory shows a cash loss of Rs. 3,143 against Rs. 14,881 in 1907. The large stock of manufactured articles in stock at the end of the year and purchase of new parts of machinery account for the loss. * * * * The net earnings of the Jail rose from Rs. 26,406 in 1907 to Rs. 48,961. * * * * The Iron-work Department showed a profit of Rs. 4,802. This industry gave employment to 72·17 convicts daily. * * * * The Tailoring Department is capable of doing more work. * * * * The profits under this head were Rs. 14,477 and the Carpet Department showed a profit of Rs. 1,140.

*Note.*—Profits outside the steam factory :—

| | Rs. |
|---|---|
| Iron-work .. .. .. | 4,802 |
| Tailoring .. .. .. | 14,477 |
| Carpets .. .. .. | 1,140 |
| Total .. | 20,419 |
| Carpentry not stated .. .. .. | 1,885 in 1905 |
| Mustard oil-crushing not stated .. .. | 1,927 in 1905 |
| Miscellaneous not stated .. .. | 394 in 1905 |
| Bakery not stated .. .. | .. |
| Total .. | 4,206 in 1905 |

### EXTRACT FROM 1905 REPORT SHOWING THAT MATERIALS RECEIVED BUT NOT PAID FOR ARE NOT RECKONED AGAINST NET PROFITS.

"The increased profits are due to the fact that European stores were received late in the year and will be paid for from next year's Budget." "They (the profits) constitute a record for the Jail."

*Cash Profits.*

| Year. | | Loss.<br>Rs. | Profits.<br>Rs. | |
|---|---|---|---|---|
| 1899 | .. | .. | 44,062 | |
| 1900 | .. | .. | 52,680 | |
| 1901 | .. | 11,347 | .. | |
| 1902 | .. | . | 50,649 | |
| 1903 | .. | .. | 47,845 | |
| 1904 | .. | . | 67,457 | |
| 1905 | .. | .. | 6,077 | |
| 1906 | .. | 17,643 | .. | |
| 1907 | .. | 14,881 | .. | |
| 1908 | .. | 3,143 | .. | |
| | | 47,014 | 2,68,710 | Balance Rs. 2,21,696 profit or an annual average of Rs. 22,170 profit. |

*Net or Book Profits.*

| Year. | | Loss.<br>Rs. | Profits.<br>Rs. | |
|---|---|---|---|---|
| 1899 | .. | .. | 64,018 | Blankets 43,827 ; carpets 3,168 ; bricks 1,555 ; tailors 13,667. |
| 1900 | .. | .. | 44,336 | Not stated. |
| 1901 | .. | .. | 55,512 | Blankets 42,044 ; carpets 1,614. |
| 1902 | .. | .. | 46,752 | Blankets 37,143 ; tailors 5,767 ; carpets 943. |
| 1903 | | .. | 36,976 | Blankets 26,942 ; tailors 7,103. |
| 1904 | .. | .. | 57,827 | |
| 1905 | .. | .. | 65,002 | Tailors 5,176 ; carpenters 1,885 ; oil 927 ; miscellaneous 394. |
| 1906 | .. | .. | 40,529 | |
| 1907 | .. | .. | 26,406 | |
| 1908 | . | .. | 48,961 | Iron-work 1,802 ; tailors 14,477 ; carpets 1,140. |
| | | .. | 4,86,389 | or an annual average of Rs. 48,639. |

There is a difference in these ten years between cash and book profits of Rs. 2,64,093.

The plant and stock, etc., of the jail amount on the 1st January 1899 to Rs. 2,16,806-13-0 and on the 31st December 1908 to Rs. 28,299-3-0 or an increase of assets of Rs. 66,185-6-0. Subtracting Rs. 66,185 from Rs. 2,64,693 a balance of difference between cash and net profits is left of Rs. 1,98,508, that is to say, of about 41 per cent. of the net profits for the ten years.

This amount is apparently not represented by assets in any shape or form, and has not been paid into the Treasury in cash, although Statement XII-A differs from Statement XII by the sums which make it up.

Thus to refer to the Balance Sheet for 1908 at the commencement of this appendix—

Statement XII-A (net profits) reads

| | Rs. | a. | p. |
|---|---|---|---|
| " Account paid into Treasury including invoices, 1908 .. | 2,22,713 | 5 | 0 |
| Whilst Statement XII (cash profits) reads in the corresponding entry— | | | |
| " Paid into treasury on Manufacturing Accounts .. .. | 1,91,475 | 7 | 0 |
| Showing a difference of .. .. .. .. | 31,237 | 14 | 0 |

The difference in these entries is made to lie in the words " including invoices " and it became necessary to find out what was meant by " invoices."

It was at first naturally supposed that transfer entries, which were not considered cash by the Treasury, were meant, but this was soon proved wrong, and the explanation was eventually found in a paragraph in the 1899 report :—Statement No. XII shows only the *cash* results of the working of the factories, that is, the difference between the amount remitted to, and the amount drawn from, the Treasury for factory purposes. No profit is shown for purely departmental work, such as making prisoners' clothing, warders' uniforms, cooking ranges, etc., in the case of which, under standing orders, credit is only taken for the actual cost of the materials used." The following statement (identical with XII-A) takes into account, not only the cash drawings and remittances, but also the value of raw materials and manufactured stock and the amount of outstanding debts at the beginning and at the end of the year, *while all work done is valued at market rates* :–

In the statement which follows, summary in the text of the detailed statement XII-A and which is repeated in every report :- " Remittances at market rates during the year " is the total of the column " Amount paid into the Treasury including invoices " in XII-A.

The difference between cash and net profits is, therefore, the difference between what the jail has received for its goods and what it thinks it ought to have received at market rates. The net profits are a mere estimate and have no tangible existence outside the paper on which the figures have been printed. They come out of nobody's pocket and no one connected with the jail has any personal interest in seeing that the market price is not over-stated. On the contrary, there are obvious interests tending to raise rates and increase profits.

It should be noted that the explanation quoted above expressly says that all work done is valued at market rates. It does not limit the valuation to work done for other jails.

When, a year ago, the jail tendered for certain blankets at Rs. 3-10-0 each, and our tender was Rs. 3-3-0, which was the market rate? At what rate did such blankets go for valuation?

## APPENDIX I.

### NET EARNINGS OF PRISONERS SENTENCED TO LABOUR.

*Bengal Reports*, 1899 – 1908.

| Year. | Average all Jails. | Bhagalpur. | Baxar. | Alipur. | Presidency. | Midnapur. | Hazaribag. |
|---|---|---|---|---|---|---|---|
| 1899 .. | 30·3 | 38·12 | 83·7 | 57·11 | 50·6 | 34·13 | 14·14 |
| 1900 .. | 27·3 | 26·7 | 93·10 | 54·12 | 53·12 | 31·6 | 11·13 |
| 1901 .. | 26·11 | 31·15 | 96·7 | 62·2 | 101·2 | 24·2 | 14·11 |
| 1902 .. | 30·12 | 27·3 | 85·11 | 62·11 | 111·9 | 23·10 | 20 |
| 1903 .. | 31·9 | 24·1 | 90·7 | 33·3 | 116·1 | 43·3 | 21·5 |
| 1904 .. | 42·13 | 35·8 | 90·13 | 66·2 | 143·12 | 35·1 | 17·6 |
| 1905 .. | 40·8 | 38·2 | 73·9 | 44 | 132·12 | 45·12 | 30·2 |
| 1906 .. | 46·12 | 22·14 | 68·5 | 103·6 | 140·8 | 41·4 | 48·14 |
| 1907 .. | 40·7 | 15·10 | 54·11 | 47·9 | 166·4 | 39·4 | 10·10 |
| 1908 .. | 32·3 | 27·14 | 37·4 | 18·13 | 134·9 | 30·2 | 23·13 |
| Average - | 34·15 | 28·13 | 77·7 | 56·1 | 115·6 | 34·14 | 24·6 |

*Note.*—Average of all jails includes subsidiary jails and up to the end of 1904 all jails of Eastern Bengal, transferred in 1905 at the partition. Of the large jails transferred, Dacca was beginning to make profits above the average, whilst Rampur Boalia was doing very poorly. Several jails ran under 100 prisoners, whilst 89 subsidiary jails averaged in 1903 a total of 164 prisoners, or less than 2 each.

## APPENDIX J.

### EFFECT OF STEAM MACHINERY ON THE PENAL CHARACTER OF IMPRISONMENT WITH HARD LABOUR.

Opinion of Major R. J. Macnamara, Officiating Inspector-General of Jails, Bengal, in Jail Administration Report for 1903, page 6 :—

" In some of the larger jails there is steam machinery, at which the work is rather of a skilled than of a laborious character, and here it might be expected, other things being the same, that the offences for short work would be fewer. The high ideal laid down in the Jail Code, that prisoners fit for hard labour should not be employed on medium or light labour from considerations of profit, is often ignored, owing to the circumstances that too much credit is given to manufactory profits, and it is often more profitable to employ men on light skilled labour than on hard labour in which the element of skill is wanting. So long as this is the case, the fact that a jail is a place of punishment in which a prisoner must do hard work, if fit for it, whether it is profitable or not, is likely to be lost sight of."

ORAL EVIDENCE, 16TH NOVEMBER 1917.

(MESSRS. EWART, LATHAM & CO. *were represented by* MR. W. WALKER.)

*Mr. G. A. Thomas.* *Q.* As regards misdescription you propose that all woollen goods imported as well as goods exposed for sale should have a stamp or label showing their composition. As regards the former there would not be much difficulty, because they could be examined and tested at the time by the Customs authorities ?—*A.* It appears it is not the case.

*Q.* There would be no difficulty ?—*A.* It could be done—arranged at the Customs.

*Q.* The goods may be correctly stamped or labelled when they are passed at the Customs, but they can be differently stamped when they are exposed for sale ?—*A.* There are methods of marking on the fabric itself.

*Q.* You talk about stamp or label. The label can be either manufactured locally or imported with the goods and stuck on to the goods afterwards ?—*A.* I think there are instances of that.

*Q.* As regards exposure for sale, would you make the mere act of exposing goods wrongly stamped or not stamped at all a legal and penal offence, or ought the person selling it or attempting to sell it to have knowledge that they were wrongly stamped ? Would you haul up a petty seller in the bazaar for selling goods wrongly stamped ?—*A.* Nominally ; as a protection for the buyer.

*Q.* What organization would you have for inquiring into such things ? Would it not be a very difficult matter ? You would have to get a whole body of trained inspectors drawing such a salary as would keep them free from corruption ?—*A.* That will be a difficulty of course.

*Q.* You would require a costly organization throughout the country for dealing with this matter ? *A.* I am afraid you would.

*Q.* It would have to have a large number of testing houses and laboratories ?—*A.* It would have to be done on the same principles as the Board of Trade Inspectors' work at home.

*Q.* Have you any idea of the expense of such an organization ?—*A.* I have not thought about that at all.

Q. At present when a man buys goods marked 'wool' does he believe the description or not ? Probably he does not. When a lady asks the shopman is this 'wool' (marked wool) does the lady believe him ?—*A.* I think so.

*Q.* If a wrong stamp is put on, the ordinary unintelligent buyer would believe that the thing is all wool and would pay a higher price than when there is no stamp at all. He would attach importance to the stamp and would be more easily deceived ?—*A.* There would have to be control over the stamp.

*Q.* It is perfectly easy for the shopkeepers to keep two kinds of stamps and labels ?—*A.* One might say the same about weights and measures. One could keep one kind of measure for the inspector and another for the customer.

*Q.* If you are to carry out this proposal of yours, might it not lead to even greater frauds than at present ? Might not the establishment for providing against it be so expensive that it would be hardly worth while to undertake it ? You have many different classes of goods and you would require different classes of inspectors.—*A.* I think one man with a kind of working knowledge of most of the general things would do.

*Q.* This man is to go on taking samples ?—*A.* Something like the municipal inspectors in England for foodstuffs, etc.

*Q.* It is a fairly easy matter when you come to edibles and drinkables, but when you come to other kinds of things it would require a very much larger organization and entail much more hardship to the seller than it would be worth while. Don't you think so ?—*A.* I cannot see why it should be more difficult in the case of manufactured articles than in the case of raw foodstuffs.

*Mr. C. E. Low.*—*Q.* Suppose a person puts "flannel" on imported goods, it would be taken as meaning what ?—*A.* As meaning pure wool.

*Q.* Supposing he says "flannelette" ?—*A.* Flannelette is cotton entirely.

*Q.* Is this not exactly the same kind of thing that you are trying to avoid ?—*A.* Flannelette is known to the majority of people who use these fabrics that it is cotton and it is no misdescription.

*Q.* I doubt whether the Indian public will know until you tell them that it is cotton.—*A.* Of course, it is difficult from that standpoint. At home they understand that flannelette is a cotton fabric. If that were the standard description and understood to be cotton, there would be no question of misdescription in the term.

*Q.* You suggest that if a thing is not pure wool the amount of wool in it should be noted and other things in it ? Is that the idea ?—*A.* Usually the general admixture is cotton with wool or silk (which is, however, expensive). I do not know of any other substance being used.

*Q.* When you get a word like 'flannelette' it apparently does not apply to a mixture. If a thing like flannelette is made up to look like wool you still have the element of pretence which is capable of imposing upon the public ?—*A.* Then it can be marked on the face of the fabric, if there is any such likelihood, as "Flannelette—Cotton."

*Q.* You insist on the man describing the proportion of cotton in it and if that proportion is incorrect he would be subject to a penalty which would depend on the discretion of the magistrate as to the circumstances and degree of misdescription.—*A.* Of course, in a general description, such as "Wool—25 per cent. Cotton." I take it there would have to be some kind of margin.

*Q.* And you consider that the same principle should be applied in respect of other materials, like silk and cotton ?—*A.* I think so.

*Q.* Would you take it beyond piece-goods ?—*A.* I certainly think that the question of misdescription should be applied to anything particularly in the nature of foodstuffs.

*Q.* In the case of foodstuffs the man who buys bad ones might die of some unpleasant disease, but in the case of cotton or woollen things, that is not probable.—*A.* A man can say, "I cannot afford to buy wool," but he should know what he is buying. He may prefer cotton to wool, but he should know what he is getting.

*Q.* With reference to power jail industries does this take place anywhere besides Bhagalpur and Coimbatore ?—*A.* Not at present. There was some talk of starting jail manufacture of blankets in the Punjab some years ago. Since the war broke out all these matters have stood still.

*Q.* And you would be content with the prohibition of the use of power machinery in jail ?—*A.* Yes.

*Q.* So far as your special industry is concerned ?—*A.* Yes.

*President. Q.* Is this still in existence, the jail competition ? You have quoted an old letter from the Madras Chamber of Commerce. Have you any direct evidence of your own about this competition that you object to ?—*A.* In 1914 we lost a contract for the Ordnance Department.

*Q.* Do you know how many blankets they turn out in the Bhagalpur Jail ?—*A.* I think they give the figure as something like 6,500 per month.

*Q.* You say about 500,000 lbs. It comes to this that the Bhagalpur Jail is a very serious competitor in the quantity of stuff turned out ?—*A.* Yes.

*Q.* I wanted to be quite sure whether it is of any importance or not.—*A.* It is a very serious competitor, especially when you take the other jails into account where they are doing similar things.

*Mr. A. Chatterton.*—*Q.* Besides this Bhagalpur Jail there was a jute mill in the Nagpur Jail and power was being used also in the Buxar Jail. Are these still going on ?—*A.* I think so. I am not competent to speak on that point well.

*Q.* You do not know anything about the jute mill ?—*A.* No.

## WITNESS NO. 300.

### MR. N. K. JOSHI, B.A., *Banker, Bombay.*

### WRITTEN EVIDENCE.

My evidence before the Indian Industrial Commission was mainly intended to be on the cardboard industry.

I am not an expert in the industry but came to know of it on account of my acquaintance with Mr. G. J. Ram of Aryapuram, Rajahmundry, who had specially studied the industry in Japan and tried in 1909 to float a concern for it in Billimora of His Highness the Gaekwar. He did not succeed even in making a start and so had to give up the idea and take to service in Madras. All the details of the working of the industry, including the several specifications for plant and building, are with him. He has not been able to send them in time to be included in my written evidence.

I attach herewith an article* of mine, dealing with the industry, that I contributed to the "Commonweal" of Madras. I regret I shall not be able to throw more light on the industry unless I receive the detailed papers from Mr. J. Ram.

---

* Not reprinted.

The imports of pasteboard and cardboard into India are—

| 1913-14. | 1914-15. |
|---|---|
| £56,947. | £48,501. |

The average imports before the war were from seven to nine lakhs rupees a year. To meet the whole demand of India at least five or six mills will be required. The yield of finished product for twelve tons of rice straw mixed with six tons of lime is nine tons of cardboard.

*Financial Aid to the Industrial Enterprises.*

I had experience of raising capital for Indian joint stock banks. In big cities like Bombay, Poona and Ahmedabad people can be very easily induced to subscribe for shares, provided they are shown with reasonable certainty that their investment would yield them 6 to 7 per cent. or at least would appreciate by a rise in the share market. People in the mofussil are averse to investing in any industry except the stereotyped ones of ginning and pressing which are scattered over the whole belt of the cotton area and which work only for three to four months in a year and lie idle during the remainder months of the year. It is not the fault of the mofussil that it does not take up shares in any other industry, because the people hardly see any other industry before them except the ginning and the pressing. Banking should be brought home to them through the opening of Presidency Bank branches in district places and important commercial centres. Even Government loans or guaranteed Municipal and Port Trust bonds are not known to them. Generally it happens that all the shares which are very likely to appreciate in a short time on the Bombay Stock Exchange are under-written or taken over by Bombay merchants and broker rings. Such shares as cannot be subscribed in Bombay are thrown over to the mofussil for subscription. Besides, there are very few industries which have been paying regular and gradually increasing dividends and the mofussil generally being mostly agricultural and not accustomed to trade risks and the advantages of a rise or fall in the share market has no tendency or means or education to go in for investment in shares. If we look to the annual deposits in postal savings bank and other banks we find that the average saving per head of the population is not even half a rupee. It is these savings that form the working capital of a country or the banking capital of a country. Of the total savings bank deposits in Indian post offices, natives of India had only 15 crores and 86½ lakhs in 1909-10.

In India there is always a dearth of working capital for industrial concerns and in season; whatever capital there is it can only be exploited by the extension of the joint stock banking system to the interior which will be able to automatically concentrate it and distribute it. A reference to the deposit figures of the big banks with branches in the mofussil that failed in 1913-14 will give an idea how capital gradually comes to the banks if they are situated within convenient reach of the depositor and if they are reputed to be good and honest concerns. There is plenty of room for further extension of banking in the interior. But the Presidency Banks or other banks managed by Europeans being accustomed to appoint Europeans only on high pays do not see it worth while to extend their operations much. These bank officials have no interest in the development of the banking resources of the country and naturally cater for business that will yield a better dividend to the shareholders and justify their salary or an increment to it. In 1910 the eleven leading banks of London had 2,588 bank offices. Our Indian banks have hardly more than a dozen each. The present Indian banks, being ordinary banks, cannot take the risk of long loans for industries. Besides, they do not give that much assistance to Indian industries as they give to industries managed by Europeans. Mr. Swan in his report on Bengal industries said: "Adequate capital is particularly necessary in the case of industries run by Indian capital and under Indian management owing to the reluctance of banks under European management to give them credit." It is generally believed that European banks or banks managed by Europeans exist only for the benefit of that privileged person, the European merchant, be he German or Austrian, French or English.

A State Bank should be started; it should lend finances to banks organized on the model of Japanese industrial and hypothec banks; these latter should advance to industries.

Generally capital for industrial enterprises comes from (1) European and Indian Government officials who cannot get suitable cultivable lands in time or are debarred from purchasing land; (2) people in cities like Bombay and Calcutta, where the commercial instinct induces men to minimize the risks of industrial enterprise and to think more of the chance of gain; (3) Native States, rich zamindars and talukdars; (4) lawyers and doctors.

What Government assistance should be given will depend on the nature of the industry. Each of the eight methods suggested will be useful. The method of assistance will be determined by the exigencies of the business requiring the assistance.

Industries with guaranteed dividends and an option of the repayment of the capital at par at any time during the guaranteed period (the investor foregoing the right of redemption if refused once when proposed by the Government) will attract capital. In all cases in which

Government assistance is availed of, there should be semi-Government control through a mixed Board of Directors, the number of Directors being determined by the proportion of the Government capital to the private capital of the company.

Government audit is a necessity, whether the industry be small or big, until the Government help in finance is withdrawn.

There is need of a banking law. Even private bankers should be required to be registered. No partnership should be recognized unless it is registered. The places of business should also be registered. None should be allowed to add the word " & Co." to their business unless the business is a regular company of more than one person. In India the word " company " has been too much misused and abused.

There is no necessity to fix a maximum rate of interest to be chargeable to debtors as it depends on the securities and many other circumstances and as it is always evaded even in countries where it has been fixed.

### *Assistance in Marketing Products.*

From the catalogue that I saw of the Commercial Museum of Calcutta, I don't think it will serve any useful purpose. I don't think commercial museums are required in the present state of Indian industries. For the present illustrated commercial catalogues of Indian manufactures and goods giving the prices (average) and the names of the manufacturers will do. Stores, like the Bombay Swadeshi Co-operative Stores opposite the Victoria Terminus, should be subsidized to serve the purpose of commercial museums. Travelling exhibitions will be very expensive and will be of no advantage. The advantage of important rural *fairs* should be taken by the Agricultural Department in showing agricultural exhibits, agricultural implements, seeds and manures. I don't think any useful purpose, as regards industrial development, will be served by exhibitions in India, judging by the three or four held under the auspices of the Indian Industrial Conference in Calcutta, Bombay and Allahabad. Rather the money should be utilized in sending deserving Indian businessmen possessed of critical powers of observation and assimilation to see exhibitions held in industrially advanced countries and to submit a report or description of such industries as, in their opinion, can profitably be developed in India. Trade representatives should be appointed to represent the whole of India in all the industrially developed countries or countries with which India is connected by trade. Their qualifications should be familiarity with the general trade and industrial conditions of India, knowledge of tariff and trade regulations of India, and knowledge of the language of the country to which they may be sent. They should be attached to the Consular establishment and should rather be trade consuls for India. This is a great necessity as the one British Consul cannot be expected to give good attention to Indian interests in preference to British interests. I don't think there is any necessity for inter-provincial trade commissioners in India. The present rules regarding the purchase of stores by Government Departments should be rigorously put into practice.

Lack of primary education hinders industrial development in every way. Even co-operative societies would have made enormous progress had there been elementary education among the masses.

### *General Official Administration and Organization.*

The functions of the Department for Commerce and Industries should be—

(1) To study the industrial and commercial conditions of the province and to advise the Provincial Government to take such measures as may be found necessary.

(2) To supply trade statistics and other information to manufacturers, merchants, etc., in the development of trade and industry.

(3) To advise Government on measures affecting commerce and industry.

(4) To investigate and recommend applicants for State assistance.

(5) To collate the consular and trades representative's reports for the information of the trading public.

There should be an Advisory Board formed of five persons to be selected by ballot by the Indian Chambers of Commerce of the province: the Director of Agriculture, Director of Commerce and Industries, the Registrar of Joint Stock Companies and the Registrar of Co-operative Credit Societies should be the *ex-officio* members of the Board. The Board should be merely advisory, its function being to make recommendations to Government and to the hypothec and industrial banks.

There should be a Director of Industries: he should be a businessman and preferably an Indian, as an Indian has the advantage of knowing the vernaculars, of free intercourse and exchange of thoughts with Indians and a desire to advance the industrial position of his mother country. I wish if a Director were to be appointed he should be an Indian; an European Director would not at all be a remedy for curing the disease of industrial lethargy.

He would naturally care more for his countrymen and their advancement in trade and industry, backed as they are already by the Government and the European firms and bankers and European bank managers.

### *General.*

I enclose herewith another of my articles* on cotton seed products, which is also quite a new industry that can be started advantageously in India.

Although the question of protection, preferential tariffs, etc., are outside the scope of the Commission's inquiries still I cannot but put on record that without going into those prime and most important questions affecting the whole industrial future of India, the Indian Industrial Commission will not have justified the troubles taken and the expenses incurred for recording evidences and writing their report.

( *Mr. N. K. Joshi did not give oral evidence.* )

## WITNESS No. 301.

Capt. R. L. Mackenzie Wallis.

### CAPTAIN R. L. MACKENZIE WALLIS, R.A.M.C., *Bombay Bacteriological Laboratory, Parel.*

### WRITTEN EVIDENCE.

### *Note on the utilisation of groundnut for bread making.*

In accordance with verbal instructions from the General Officer Commanding, Bombay Brigade, I have the honour to submit to you the following report upon the use of the new "nutrose" for purposes of bread making :—

"Nutrose" is a German artificial food product, and previous to the war was sold in large quantities at the rate of 9*s.* a pound. It had a great vogue as an invalid food, for thickening soups, making bread, etc. Further, this product was in great demand by bacteriological laboratories throughout the world, since it is an essential constituent of certain media required for growing organisms, particularly of the typhoid group. On my arrival at Parel, last November, I found that there was a considerable shortage of this preparation in India, and so set to work to find a substitute. My new preparation has been made entirely from materials obtained locally, and has proved far more efficacious than the original German product, not only for bacteriological purposes, but also as an invalid food.

The components of this new substitute are—

Groundnut cake.

Dried milk.

Sodium carbonate or bicarbonate.

All these materials are very cheap, and can be obtained in India in an unlimited quantity. The groundnut industry is a large one, and before the war the nuts were exported from India in large quantities, chiefly to France. There the oil, of which about 45 - 50 per cent. is present in the groundnut, was expressed and used for soap making. The resulting cake was either thrown away or used as cattle food. Now that this export trade is cut off, there is a demand for this oil in India as a substitute for olive oil, and there are several oil-crushing mills in this country capable of carrying this out. To improve the groundnut industry, I would make the following recommendations :—

(1) The paperlike husks serve as a most useful material for stuffing mattresses and cushions, and also as a source of cellulose for paper-making.

(2) The thin brown coating over the kernel should be separated by a blast of air, and this coat would serve a useful purpose as manure.

(3) The kernel is then ready for expression of the oil in three fractions. The first expression is a valuable oil for culinary purposes, the second as a lubricant, and the third expression for making soap.

(4) The resulting groundnut cake can be utilized for making this new substitute for "nutrose" and supplied as an invalid food and also as a diluent of flour to conserve the present wheat supply, also as a source of flour for making ration biscuits.

From the above it will be seen that there is absolutely no waste in the industry, and that for the oil alone the commercial value is great.

The groundnut cake is allowed to dry in the sun and is then powdered into a fine flour. This is mixed with the requisite quantity of casein and sodium carbonate, as described by me in the April number of the Indian Journal of Medical Research.

The resulting flour keeps well in tins, and can be used in this form for making bread.

---

* Not reprinted.

After a large number of trial bakings, I have come to the conclusion that a proportion of one part of this new flour to three parts of ordinary flour makes a palatable, and at the same time highly nutritious loaf. Samples of this bread were made and submitted to various Military Departments for report, in accordance with a request from the Quartermaster-General in India in his letter No. 32028-1 (Q.M.G.-6-A.) of the 6th March 1917, to the Assistant Director of Supplies and Transport, Bombay Brigade. These reports were on the whole favourable, and the only adverse criticisms directed were against the baking.

The chief advantage of this flour, however, is in the making of ration biscuits. Biscuits made with the new " nutrose " alone have a sweet taste, and are highly nutritious and keep well. In addition there is evidence to show that this flour possesses anto-scorbutic properties, a matter of great importance to troops in the field.

A number of experiments are now in progress to obtain the ideal loaf, and also the ideal ration biscuit.

The substitution of an expensive German food product by one of great cheapness, the constituents of which can be obtained in India in unlimited quantity, offers a wide field for development, especially after the termination of hostilities.

A glance at the figures of the Indian export trade before the war shows that large quantities of these oil-containing nuts left the country. With the German sources of supply cut off entirely by reason of the acquisition of German East Africa, the whole trade in oil-containing seeds rests in the hands of the British Empire and America.

*(Captain Mackenzie Wallis did not give oral evidence.)*

## WITNESS NO. 302.

## INDIAN MERCHANTS' CHAMBER AND BUREAU, *Bombay.*

*Indian Merchant Chamber and Bureau.*

### WRITTEN EVIDENCE.

In reply to your letter of the 11th December 1916, No. 2234, I am directed by the Committee of this Chamber to send to you their replies to the questions asked by the Indian Industrial Commission. It may be mentioned that our replies apply to the Bombay Presidency only.

*Q.* 1. Yes. Individual members of the Chamber have had such an experience.

In case of enterprises requiring large capital which are backed by good names and for which full preliminary investigations have been carried on there is very little difficulty in raising the required capital in this Presidency, but small industries which do not attract large capitalists or well-known men to finance them are much hampered on account of want of capital.

The Committee have to make one suggestion regarding the removal of difficulties in this connection, and it is that Government should assist by providing services of experts in making preliminary investigations. Even in case of existing industries, Government should make available services of their experts to make full preliminary investigations about the possibilities of these subsidiary industries being started successfully. The investing public are likely to support such industries if they have an assurance from Government experts about the potentialities of such concerns.

*Q.* 2. Capital is ordinarily drawn for industrial enterprises from the savings of people in the presidency town and in large cities in the mofussil.

*Q.* 3. No.

*Q.* 4. The Committee have no knowledge of Government having given financial aid to industrial enterprises.

*Q.* 5. Any of these methods of giving Government aid to existing or new industries would be suitable according to local conditions and the requirements of each industry. The Committee would however lay stress on (2) and (7). With regard to the item 7 they are emphatically of opinion that the preferential Government purchase of indigenous products should be a permanent rule and not one to be observed for limited periods, and that orders on the subject should be strictly enforced in practice.

When help is given by Government in any of these forms to joint-stock concerns it must be one of the conditions of the concession that when any such company is floated, Indian investors should be given opportunity for subscribing to shares and preference be given to their applications at the time of the allotment of their shares.

*Q.* 6. In case of none of these methods is Government control desirable. Only supervision in the form of inspection and in some cases Government audit may be necessary. In case of No. 3 there may be also a Government director.

*Q.* 7. The Committee have no experience of Government pioneer factories.

*Q.* 8. The Committee approve of the establishment of model factories for the purpose of interesting people in starting new industries and would even advocate, if other methods fail, pioneer factories being worked till the industry proves commercially feasible.

As a general rule, the Committee are in favour of Government starting pioneer factories only when other methods have not been potent in attracting capital to industries. When definite results are achieved, the factory should be closed if the results are unsatisfactory, and handed over to private capitalists if the results are proved to be satisfactory. The Committee are however strongly against the conversion of successful pioneering experiments into permanent Government enterprises.

*Q.* 9. Small industries which do not attract large capitalists or well-known men to finance them are much hampered in their progress on account of difficulties in the way of adequate finance.

Shahukars and private capitalists finance such small industries to some extent but their charges are not as favourable as those of banking concerns and even they are very often not able to render financial assistance to the fullest extent and cannot be definitely relied upon. The result is under-capitalisation and failure.

*Q.* 10. By the starting of industrial banks.

*Q.* 10-*a*. Yes.

*Q.* 11. To my Committee's knowledge a beginning has been made in assisting the following industries by the formation of co-operative societies :

Oil-pressing, tanning, shoe and boot-making, cane and rattan work, *gur* making, hand-loom weaving.

But in the case of hand-loom weaving systematic efforts, though on a small scale, have however been made for its promotion. Societies of weavers generally started as credit societies have afterwards adopted the common purchase system. Several of them have also got common sales.

*Q.* 12. Co-operative societies should be encouraged for the same industries as are mentioned in reply No. 11.

*Q.* 14. No limitations.

*Q.* 15. So far as the Committee are aware no technical or scientific aid has been provided by Government for industrial enterprise.

*Q.* 16. No researches have been conducted in this Presidency.

*Q.* 17. Consultation with Government experts should be free, provided the applications for such consultations have been sent through the Directors of Industries with their recommendations. If, however, the services of these experts are loaned out for a long period, private firms or companies to which they are so lent should pay their salaries.

*Q.* 18. Results of researches of these experts while attached to a private business should not as a general rule be published, but if the experts are consulted by any other firms or companies afterwards, they should not be prevented from communicating the results of the previous investigation.

*Q.* 19. Existing factories may be turned into demonstration factories with the consent of their owners, but on condition that they should be open to the public during the period they are worked as demonstration factories by Government at Government expense. The glass factory at Sunthrampur, for instance, which is not working at profit at present, may well be worked as a demonstration factory in order to popularise it and its products.

*Q.* 21. The Committee have no experience of the aid afforded by the scientific and technical departments of the Imperial Institute.

*Q.* 22. It would be advantageous to have provision for research for special subjects in the United Kingdom. Local departments of industries and scientific institutions will then be able to send inquiries to the institute in England and in this way there will be a co-ordination of efforts by correspondence. If there is this co-ordination it will also avert the danger of any duplication of efforts.

Those industries for which there are special facilities of research in the United Kingdom should preferably form the special subject for researches there.

*Q.* 23. The advisory council for research in the United Kingdom can give an assistance to the Indian industries by carrying out experiments in directions suggested by us and notifying their results.

*Q.* 24. It will not be possible to refer research problems to colleges and similar institutions in India unless there is a college which is properly equipped for such task. The practice may, however, be adopted with advantage when and where possible.

*Q.* 25. There is need for comprehensive survey of the agricultural, forest, and mineral resources of the country. In this Presidency there have been three surveys in the past, for hand-loom weaving, the leather industry and the oil industry, but there are numerous other fields waiting for full research and investigation.

*Q.* 26. The survey should be a detailed one so that the people can act on it.

*Q.* 27. The result of such surveys to be useful must be published broadcast.

*Q.* 27-*a*. The Committee have no experience of the value of consulting engineers appointed by Government to aid industrial enterprise by technical advice and by the supply of plants and machinery and estimates, nor can they therefore offer any opinion on the same.

*Q.* 27-*b*. Such consulting engineers should not be allowed to undertake the purchase of plant and machinery for private firms and individuals.

*Q.* 28. A commercial museum such as the one located in Calcutta requires a great deal of development before it can be made useful to the commercial community commensurate with the expense and trouble bestowed on it.

*Q.* 29. There should be commercial museums in all the presidency towns and important commercial centres, and their chief aim should be to bring into touch producers and consumers and to make known foreign made articles so that endeavours may be made to supplant them here with locally made articles.

*Q.* 30. The Bombay Swadeshi Co-operative Stores is a good instance of a commercial emporium for the sale and display of the products of what may be called cottage industries. The Committee do not deem it advisable that Government should start such emporia themselves. This work should be left to public.

*Q.* 30-*a*. Travelling exhibitions of cottage industries would be of advantage. Railway carriages may well be used for this purpose as in the United States.

*Q.* 31. Industrial exhibitions have an educational and advertising value. The Committee regret, however, to say that proper advantage has not been taken of them by the public till now. Looking to the new spirit of industrial revival the Committee hope that exhibitions will become of increasing practical value.

*Q.* 32. Government should take measures to hold and to encourage such exhibitions. But these should be held at long intervals and in different centres.

*Q.* 33. These exhibitions should not aim only at bringing sellers and buyers into contact but should also be popular in character, in order to make them self-supporting and to induce the mass of people to visit them.

*Q.* 34. Trade representatives should have a good knowledge of local trade conditions and have had practical experience of the trade and industry of India, and should be non-officials and preferably Indians.

Their duty should mainly be that of the promotion and development of exports of Indian manufactures by enabling Indian manufacturers to introduce their wares in foreign countries.

*Q.* 35. There may be temporary commissions for special inquiries when occasions require them.

*Q.* 36. There is no necessity for different provinces in India to have trade representatives in other provinces, especially as Directors of Industries will be there to give information to all who might care to inquire regarding the commercial conditions and possibilities of other provinces. There will be also commercial museums at which it will be possible for people of different provinces to get the required information about other provinces.

*Q.* 37. Government Departments which use imported articles should publish lists of such articles and also exhibit them in commercial museums.

*Q.* 38. The Stores Department of the India Office should be abolished and one should be established at Delhi, under a Director General of Stores who would supply all the requirements of different departments in the country. The main principles to be observed in the purchase of stores should be as follows :—

> Indian made articles, whenever procurable, should invariably be purchased and every possible effort should be made to encourage local manufactures. Where however articles not made in this country are required, they should be purchased preferably from firms in India. If this system is followed most of the important manufacturers will keep their representatives or open their agencies in India and will be able to give quotations without delay.

*Q.* 39. Industrial banks should be established to provide facilities for marketing indigenous products. Until however a large number of such banks are started Government should induce Presidency Banks to grant facilities at the existing centres and if necessary open more branches in the mofussil.

*Q*. 40. Government should assist industries with the supply of raw materials on favourable terms.

*Q*. 41. As there are practically no facilities for acquiring land for industrial purposes it has not been practicable to start those industries, for the successful working of which land has to be acquired. The Committee think that land should be acquired for industrial purposes only, when the particular industry cannot be developed profitably without such an acquisition. The basis of compensation in these cases should be more liberal than in other cases of acquisition of land. If the present law does not allow such an acquisition, a bill should be introduced in the Imperial Council legalising acquisition of land for an industrial purpose.

*Q*. 42. No general principle can be laid down regarding concessions of land for industrial development. Each case must be judged on its own merits.

*Q*. 43. See our reply to Q. 41.

*Q*. 43-*a*. Each case must here also be judged on its own merits.

*Q*. 44-*a*. Yes: The lack of primary education does hinder industrial development.

*Q*. 44-*b*. Very little has been done in the textile industry to improve the labourers' efficiency and skill.

*Q*. 45. The following things are particularly essential for improving the labourers' efficiency and skill.

Compulsory free education, manual training in schools, sanitary housing, better wages, redemption of debt.

*Q*. 46. Mills and factories take up apprentices, who receive therein fairly good training.

*Q*. 47. Industrial schools are principally of two types, one of the type of the Victoria Jubilee Technical Institute now known as the Central Technological Institute, and the other of the class of the Surat, Ahmedabad and Baroda Technical Schools. Students who have obtained diplomas from the former institute are on the whole found to be satisfactory on the theoretical side. Some of the prejudice against them is due to the fact that their employers expect them to be equipped in every respect, when as a matter of fact they have completed the theoretical portion only and got little practical training, as their real practical training begins in the factories. Some disappointment is felt when they cannot come up to the standard set for them by their employers and consequently a sort of prejudice is created against the whole system. It is sometimes forgotten that the advantage of having studied either in the Victoria Jubilee Technical Institute or in the Surat and Ahmedabad Schools is that the students can assimilate practical training much more easily and can thus be practically trained up in a shorter period of time than others who have not enjoyed the advantage of a theoretical training.

*Q*. 48. Both the systems of training, that is the apprentice system and the system of industrial schools, are necessary for imparting industrial education to young men desirous of taking up an industrial career. The suggestion made by Principal Dawson of the Victoria Jubilee Technical Institute in his evidence before the Public Works Committee that practical training should begin at the age of 14 appears worthy of consideration.

*Q*. 49. The only fairly successful night schools in this city are those attended by office peons and others who want to know a little English and arithmetic likely to prove useful to them in their work. Mill-hands, it appears, do not take adequate advantage of these night schools, as after 12 hours of physical exertion they are too much exhausted to be attracted to night schools. There is a great need however for extending the number of night schools. A few half-time schools have been opened for young mill-hands, but owing to the absence of compulsion they are not able to show good results in the way of attendance.

*Q*. 50. Industrial and technical schools and commercial colleges should be under the control of a department of industries assisted by a council consisting of the following members:—

1. Director of Public Instruction.
2. Chairman of the Board of the Victoria Jubilee Technical Institute.
3. The Principal of the Victoria Jubilee Technical Institute.
4. The Principal of the College of Engineering of Poona.

5, 6, 7 and 8. One representative each from the Bombay Chamber of Commerce, the Indian Merchants' Chamber, the Bombay Millowners' Association, and the Ahmedabad Millowners' Association.

*Q*. 51. Graduates of Commerce of the Bombay University offer very good material for being trained as supervisors and skilled managers, if there is a provision made for their being taken up as apprentices by commercial firms. There is need for establishing an information and employment bureau at the Sydenham College of Commerce, under the charge of the Principal of the College who may be assisted by the advisory board of the College.

In this connection the Committee would like to draw the attention of the Industrial Commission to the system prevailing in Japan, where candidates are selected every year partly by nomination and partly by examination, from all the industrial and commercial schools and sent to different countries to receive commercial and industrial training. The Government may well devise some such scheme under which a certain number of students should annually be sent to foreign countries to obtain training, specially as managers and supervisors of all grades.

*Q.* 52. As beforementioned, Government should institute scholarships for persons who have worked in this country as supervisors and managers to study conditions and methods in other countries. These young men should also not be precluded from competing for technical scholarships given by Government to graduates. All other factors being equal they should be given a preference in awarding such scholarships. As Mr. Mallet, in his annual report of the Students' Department, observes, it is men with practical experience who will be able to get much benefit from a trip to foreign countries. They will also, if sent as Government scholars, be able to get certain special facilities which will be denied to ordinary students.

*Q.* 53. Industries which get substantial concessions from Government should be required to train technical experts.

*Q.* 54. There is a want of uniformity in the standard of examinations for mechanical engineers held in various provinces. There should be a sufficient uniformity of standard to enable the interchange of mechanical engineers from one province to the other.

*Q.* 55. The law in this province is quite suitable.

*Q.* 56 to 62. The provincial organization in this province for the development of industries is the Indigenous Industries Committee with a civilian as Secretary. The Committee was appointed more than a year back and the Committee of this Chamber think that it is doing good work. The Committee suggest that there should be a Director of Industries who must act as Secretary to the Indigenous Industries Committee which may be called a Board of Industries. The Director of Industries should be a person of a large and broad outlook and may be an official or a businessman. The Board of Industries should not merely be advisory but should have executive powers with budgetted funds. It should be mainly an elected body with a few experts nominated by Government. It should guide, assist, initiate and control the industrial movement. The present Commerce and Industries Department of the Government of India forms a good nucleus for an Imperial Industrial Department, and the Committee suggest that railways should be separated from this department, and, with irrigation taken from the Public Works Department, should form another department under a Minister of Railways and Irrigation. The Commerce and Industries Department then will have its hands free to look after the development of commerce and industry. The Commercial Intelligence Department will be under it while the different Directors of Industries with their Boards of Industries, should not directly be under this department. They must be under the control of their own Provincial Government. General principles guiding the industrial development may be laid down by the Imperial Department, but the Provincial Government should have a free hand in preparing the details to suit their local requirements. The different Provincial Departments of Industries will naturally be in intercommunication with one another, and hence the experience gained at one centre will easily be available at other centres.

There should be a special section of every department of industries organized for the assistance of cottage industries. As to which cottage industries should be developed, see answer No.

*Q.* 63 to 76. There are no technical and scientific departments capable of giving assistance to industries in this province. There should be a central research institute for the whole of India and technological institutes in different provinces. The central research institute should be located at a principal commercial and industrial centre and not at any out of the way place, the principal reason being that those engaged in research work should be in constant touch with industrial needs. A further advantage would be that the technical experts actually engaged in the industries may get an opportunity of devoting some of their time in research in the central institute. The subjects for which the research work should chiefly be undertaken are what are known as key industries, agricultural industries, mineralogy, etc. The staff of the central research institute should be recruited from the best possible men available, preference being given to Indians. This central institute should be under the Imperial Commerce and Industry Department of the Government of India, while the different technological institutes should, as aforementioned, be under their respective provincial departments of industries. The services of experts of the central research institute should not be loaned out to Provincial Governments, but they must undertake regular tours throughout the country, when they may be consulted by those institutes. Local Governments may well engage experts for examining cottage industries and those local industries which may be special features of their provinces. There should be co-ordination between the different provincial research institutes and the central research institute, as also between these and the various technological institutes, in order that there may be no overlapping of subjects considered by each. Each provincial institute should deal with a limited group of related subjects while the general questions should be taken up by the central institute. There should be no more Government control than is described above. There should be an annual session of the science congress and greater co-ordination between the different institutes.

*Q.* 77. The Government of India grant technical scholarships, the amount of which has only recently been increased. These scholarships may be available for Government technical and scientific experts for whom, the Committee feel, frequent visits to centres of scientific study and research are essential, so that they may not fall back behind the times.

*Q.* 78. There are no satisfactory libraries in this country for technical and scientific works of reference. As was observed recently at the meeting of the Indian Science Congress, such libraries would mean outlay of lakhs of rupees, particularly when even one section of science namely, zoology, would require at least two lakhs of rupees for a comprehensive library.

*Q.* 80 and 81. There is one college in Bombay which is doing useful work in the matter of training Indian students in special branches of trade and commerce and also in all branches of economic and social science. Such a college can well assist industrial development as aforementioned. The Committee however fear that the utility of this college is greatly marred by its being underfinanced, and by there being no suitable building provided for it hitherto.

*Q.* 81-*a.* Municipalities and local boards can assist in promoting industrial and commercial development by abolishing the octroi duty and giving water rate facilities. They might also be asked to give some concessions to the factories in their infancy, in the form of reduction of taxes, and to maintain the roads to the factories in good state so that the traffic to the factories might not be hampered.

*Q.* 82. Native States should be asked to co-operate with the Government in the matter of collection of statistics. This subject may well be brought forward at the Chiefs' Conference.

*Q.* 84. The *Indian Trade Journal* is found useful by the Indian commercial community as it contains interesting commercial and industrial information and summaries of commercial and industrial statistics. It may well be developed still further by having special articles on science and industry and also by publishing therein reports of proceedings of the different provincial departments of industries.

*Q.* 85. Instead of the Government starting trade journals in different centres, the Committee would suggest that they should subsidize trade journals in different centres published by Chambers of Commerce or some other responsible bodies. The Indian Merchants' Chamber has been publishing a journal for the last eight years. The journal has been found very useful by Gujarati knowing merchants and is self-supporting.

*Q.* 88.—The Committee do not know of much advantage resulting from the issue of special monographs on industrial subjects but they think that the publication of these monographs and also publications of forest and geological departments would be much more useful if they were issued in a popular form and also if their translations in the vernacular of the particular province were published at the same time. The Committee desire to draw the attention of the Commission to the defects in the system of the sale of these publications. The Government announce the names of certain book-sellers as having their publications in stock for sale. It is very seldom that these book-sellers have any of the publications in stock for sale. Ordering out books from Calcutta either through these book-sellers or from the department itself means a loss of about a fortnight. The Committee therefore suggest that the Government may very well keep a stock of their important publications with leading book-sellers asking them to remit payments when these are sold.

*Q.* 89. There is no necessity for a system of Government certificates of quality. In this connection the Committee would like to draw the attention of the Commission to their opinion on the question of the hall-marking of gold and silver plate conveyed to the Collector of Customs in their letter of the 15th January 1915. They stated that the system of hall-marking should not be made compulsory in this country as it was likely to cause a great deal of loss, even to traders and artisans who were honestly pursuing their trade. Not only that but that it would entail needless inconvenience and expense on the mass of the population whom their social customs and manners and economic circumstances compelled to invest their savings in gold and silver ornaments.

*Q.* 91. Food and drugs are the two classes of materials for the adulteration of which penalties should be imposed.

*Q.* 96. The Committee approve of the registration of partnerships with proper safeguards for small tradesmen.

*Q.* 98. The Committee are strongly of opinion that the present system of railway freights, classification of goods, the apportionment of risk and the regulation of rates is calculated to be greatly detrimental to the development of Indian trade and industries. The subject however is of such a vast and important character that it should be examined by a special Committee. In this connection they would like to draw the attention of the Commission to their suggestion to the Secretary, Indian Railway Conference Association, that a joint committee of representatives of different railway administrations and the commercial communities, European and Indian, should be appointed to go thoroughly into the question of railway rates affecting the development of indigenous industries.

*Q.* 101. The external trade and internal industries of the country are handicapped by difficulties regarding shipping freights. It is however hopeless to expect any relief from this situation unless Indian shipping companies are started with assistance from the Government and worked in the industrial interests of the country on the same lines as in other civilised countries.

*Q.* 102. Efforts have been made by private companies in this direction and two well-known concerns have already been started by Messrs. Tata Sons and Company. Further investigations on the subject should be made by Government.

*Q.* 102-*a*. There should be no monopoly enjoyed by lighting companies with regard to the supply of electricity. Industrial companies should be allowed to be started which can supply electricity at a cheaper rate to industry if the lighting companies cannot do so. The Committee know that the Electricity Act itself does not contemplate any such monopoly but it is practically in existence through executive orders.

*Q.* 104. The following minerals are essential for industries of imperial importance that ought to be developed at public expense :—

Boxite, tungsten, wolfram.

*Q.* 105. The forest department is at present worked with a single eye to make the largest profit from forest produce and the officers of that department are opposed as a rule to the starting of new industries which by reducing the area of forests may reduce their profits.

*Q.* 106. Better communications are required to reduce the cost of assembling the raw products.

*Q.* 109. The Committee have no special complaints on this score during the last few years.

*Q.* 110. The Committee offer the following suggestions for the development of the following industries :—

(1) Sugar industry—

(*a*) Facilities should be made for the acquisition of land for industrial purposes. Sugar industry on a large scale cannot be started without this.

(*b*) If sugar cultivation is to spread and the sugar industry to become successful the Abkari system must be changed. The utilization of molasses is necessary if a sugar factory is to work at a profit. Rum should therefore be allowed to be manufactured from the molasses. Unless this concession is granted a sugar factory is not likely to prove successful financially.

(2) Paper pulp.—Concessions similar to those given in South Canara and Burma should be given wherever bamboos or other raw material for the manufacture of pulp exist.

The following industries are most suitable for development in this country :—

(1) Sugar industry.
(2) Pottery and porcelain.
(3) Paper.
(4) Aluminium.
(5) Silk.
(6) Shipbuilding.
(7) Oil-crushing.
(8) Tannery.
(9) Paint and varnishes.
(10) Soaps and candles.
(11) Dyes and colors.
(12) Starches.
(13) Glass
(14) Bone manure.
(15) Chloride of magnesium.
(16) China clay.
(17) Sulphuric acid.

*Q.* 112. Raw materials used in the aforementioned industries can be utilized for them very well but their use is retarded through the following causes : (1) want of Government assistance, (2) want of experts, etc., which are mentioned in different answers above. The Committee have also pointed out how they can be removed. There should be above all a sincere and earnest desire on the part of Government to develop the industries and a material support from them. What is equally necessary is the confidence of people that Government would come to their help if needed.

The agricultural department is doing good work in the improvement of raw material but the Committee think that still further efforts can be made with good results for the development of cotton, sugarcane and rubber. With regard to the improvement in the quality of cotton, concessions may well be given to induce ryots to grow long staple cotton. Sericulture may also be developed by the agricultural department.

The following industries are dependent on the importations of raw materials and partly manufactured articles from abroad :—

Glass, sulphuric acid and textile industries.

## ORAL EVIDENCE, 17TH NOVEMBER 1917.

THE INDIAN MERCHANTS' CHAMBER AND BUREAU *were represented by*—

1. SIR VITHALDAS D. THACKERSAY.
2. MR. SORABJEE E. WARDEN.
3. HON'BLE MR. CHUNI LAL V. MEHTA.

*President.*—*Q.* You say that "Government should assist by providing services of experts in making preliminary investigations." Then you go on to say, "Even in case of existing industries Government should make available services of their experts to make full preliminary investigations about the possibilities of these subsidiary industries being started successfully." There is nothing in this to dispute, except that we should like to know what your ideas are as to how far Government should go in this mater. We were told by a distinguished witness yesterday that Government ought, for instance, to maintain experts in Bombay to advise people who want to go into cotton spinning and weaving as to the best kind of machinery they should buy, and give help in buying the machinery. A conclusion of that kind is likely to be disputed for two reasons, namely, the industries are established here already and have their consulting engineers, and some of the firms might resent such Government interference. Then again, in buying machinery you have to take into account several items, such as prices, previous dealings with the firms, and several things that the Government expert could not very well interfere with in cases of that kind. Would you go so far as to say that Government should maintain experts here to advise in the purchase of machinery for an industry like cotton?—*Sir V. D. Thackersay.* *A.* That was not intended. We mean industries like glass and oil which are existing but not working successfully, owing to certain difficulties.

*Q.* Then you would not subscribe to this statement?—*A.* Not in regard to industries well established, and where we can buy expert knowledge when we wish.

*Sir F. H. Stewart.*—*Q.* Will you get sufficient expert help out of the Provincial Departments of Industries which you recommend starting?—*A.* For oil there might be good Imperial experts, and they could be lent to Local Governments and the industries through Local Governments. That would meet my point.

*Mr. C. E. Low.* *Q.* Of course you realize that no expert can be absolutely certain that, in the ordinary course of flotation of industrial companies, here and in other parts of the world, where they employ the best experts they can get, he will always be right. While they are likely to be right, they sometimes get up against unforeseen difficulties, and the company comes to grief. What effect would that have on the confidence that people feel in Government experts?—*A.* The difference between India and other countries is this. In other countries they can get experts for reasonable payment, but in India if we have to import an expert for starting small industries, the cost is so great that we cannot afford to pay. That is the chief reason why we thought that Government should grant us experts, as the expert could go round the country advising different people.

*Q.* Who is the expert going to advise; is he going to advise the Government, and is Government to take the expert opinion into consideration and say, "We have the following opinion about it", or is Government going to find the expert to advise promoters?—*A.* The expert should advise the promoters.

*Q.* Government should find the expert to advise promoters?—*A.* Yes, just as they are doing in the case of railways. Government makes investigations; the expert knowledge is there; they give a report, and on that report companies are floated. Whether the expert's report ultimately works out correct or not is a different thing.

*Q.* It is rather an essential difference in the case of a party who is not going to work the thing. Supposing Government and the party who is going to work the concern, *viz.*, the promoters, take advice from an expert; in the latter case the promoters will naturally be more cautious and go more into detail; at the same time they will take certain risks when they think it is justified; whereas Government won't. Government cannot afford, when they are acting for somebody else, to take risks. They must say, "This is a doubtful proposal, and we cannot recommend it."—*A.* The Government experts should be available to promoters, and the promoters should judge what weight to attach to the opinion of the experts. Such experts should be employed that people will have confidence in them.

*Q.* Would you make that a principle of universal application, or only in the majority of cases?—*A.* I would not go to the extent of saying that Government should be advised by the experts and Government should only carry on the things that are good, and therefore you should put your money in; that is not possible.

*Q.* Generally speaking, Government should provide experts and let those experts advise promoters?—*A.* Yes.

*Mr. Warden.*—If I may extend this question a little further. We have said that by "due support" is meant such expert opinion as is required to go before the public with a certain degree of confidence in the success of the venture. In Europe capital is of sufficient enterprise to obtain extensive expert advice; but unfortunately in India such enterprise is wanting, and hence it is desirable that in the initial stage Government should lend the assistance of experienced men to report on enterprise. To explain further this question, I may give one or two prac-
cal instances of what happened in Bombay. The late Mr. Tata, before he ventured on this
ata Hydraulic scheme, employed the late Mr. Gostling for 6 or 7 years; paid him money from
s own pocket, had the whole thing investigated, and he prepared scheme after scheme and
bmitted them to Mr. Tata. Of course the scheme did not fructify during the time he was
ive. It came into existence soon after his death. You will find few people of the enterprise
Mr. Tata to spend money out of their own pockets in order to find out the facilities for such
scheme. Now we see that scheme is started and in full working order. If Mr. Jamsetjee
ata had not volunteered to undertake the scheme and work it out, such a scheme would not
ve been an established fact in India. In similar instances when Indian capitalists wish to
into new ventures, Government might gather this information through experts and lay it
fore the public. That is what is meant by "due support". Of course no capitalist would
lame the Government for having placed expert advice before them in case such expert advice
as found to be unreliable, or did not turn out into a complete success. The backward condi-
on of India is the principal cause why we want expert advice. That is the way in which I
ut it.

*Sir F. H. Stewart.*—*Q.* You say the primary duty of experts would be to advise promoters;
ut supposing it is a question of asking for Government assistance later on. It would also be
he duty of the same experts to advise Government as to whether such assistance should be given.
Vould any difficulty arise here?—*Sir V. D. Thackersay.*—*A.* I have said later on that such
elp would be according to local conditions and the requirements of each industry.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* Do you want an Imperial expert for the whole
ountry to advise in the case of industries, such as glass, etc.?—*A.* In the early stages it will
e best to have an Imperial expert, because the Imperial Government can afford to pay a larger
alary, but ultimately, when the industries expand, we may have provincial experts.

*Q.* Suppose you wanted a bobbin factory, the Imperial expert would have access to other
epartments, like the Forest, and you would thus get more help. Some people may want to
tart the bobbin-making industry and ask Government to give them the services of their expert.
*A.* If a bobbin factory is to be started, people will apply to Government for the bobbin
xpert to advise them. He would then naturally take up the question of the wood most
uitable for that industry.

*Q.* But suppose the Government has taken up the question of bobbin making; they
an themselves inquire if it is a profitable industry?—*A.* They could issue a report; that would
e one way.

*Sir D. J. Tata.*—*Q.* Have you any idea on what terms this expert should be employed.
The Government would pay for him; but would the companies that seek his services bear any
part of the expense? On what terms exactly should this expert be employed by private com-
panies who require his services?—*A.* Ordinarily, I do not think the Government of India
ought to make a business of it. They must lend his services free of cost in the interest of in-
dustries; but when they find certain industries are able to stand on their own legs and can
afford it, they can fix the fee when expert advice is given. I don't think they should first begin by making a business of it. They must look on it as part of the general expenditure which the Government of India should incur in the interests of general trade, and then make a fair charge when the industry is started.

*Q.* They should not charge anything for the advice; but is it not rather hard on the tax-payer that a private company should have the services of men who are paid for by the general tax payer?—*A.* Every one of the tax payers can take the advice of the expert.

*Q.* Practically it will only be a private firm or private individual who is investigating into this particular thing, and who will get the benefit of it?—*A.* But that does not prevent other people from going to the expert. Ordinarily, it should be the general rule that they should pay a small fee, but I do not think Government should make a business of earning the wages of the man.

*Q.* Not to earn the wages, but to prevent unnecessary inquiries. Otherwise everybody would say, "I have got nothing to do, let me start a match factory" and ask the Government expert to make a report on that, and in this way the expert's time would be taken up unnecessarily. If there was a small charge made for his services, don't you think the possibility is that people would call on his services only after due consideration.—*A.* If it is a small charge I have no objection.

*Mr. Warden.*—In my question 8 I say something about this, that when Government lends the services of the expert and the industry comes out well, as the result of the advice given by the expert, those interested in the industry should be made to pay something for it.

*Q.* After they have floated the company, and if they don't succeed they pay nothing?—*Mr. Warden.*—*A.* Some of those starting the industry ought to be made to contribute, whether the industry succeeds or not.

*Mr. G. A. Thomas.*—*Q.* You suggest that Government should employ a number of permanent experts? *Sir V. D. Thackersay.*—*A.* Yes.

*Q.* Supposing we wanted to start a bobbin industry. It would hardly be worth while for Government to maintain the bobbin expert for the purpose of making preliminary investigations. Government might have to get a man from home, and when the investigations are completed, the man could probably be returned to England. In such a case should Government bear the cost alone, or should not the cost be borne by the industry?—*A.* If the industry could afford the cost, they would invite an expert themselves. The cost of expert knowledge in India is so great that many of the industries have not been able to start on that account.

*Q.* In the case of small industries like the bobbin, for which probably there is not room for more than half a dozen, is it fair that the tax-payer should pay for the expert?—*A.* Let us say it cost ten thousand rupees. Better that the general tax-payer should pay ten thousand rupees and half a dozen factories started than that no factories should be started at all, because the small factories cannot afford to pay.

*President.*—*Q.* In the case of that kind suppose there is a company that has started investigations and is ready to go on. Would they not object if Government got out an expert to advise other people?—*A.* That expert knowledge would be quite available to the existing factories.

*Q.* They say they don't want it; they have their own expert. They are ready to start work. Would they not object?—*A.* The question is whether some industry is already existing and successfully working.

*Q.* Here is a case in which Government has knowledge of the fact that the company in question has spent a large amount of money in preparing the way, without prospect of getting anything in return, just in the same way that Mr. Tata spent large sums of money for the iron and steel project. Would it be fair for Government to take advantage of that and say, "We are going to get an expert for Sir Vithaldas Thackersay, in opposition to Tata"?—*A.* If you give me an instance of a particular industry I can reply.

*Q.* There is the bobbin industry. I have an application from a firm who say they spent Rs. 30,000 to prove that they can make bobbins successfully. They want machinery and ask "Can you give us priority certificate to import the machinery"? Instead of that, supposing I said, "I will give this information to some Bombay capitalists to see if they cannot start such an industry".—*A.* Let Government see in 12 months if they can run it.

*Q.* Should I get an expert from home to see, or give them a chance to run it themselves?—*A.* Give them a chance for 6 months or 12 months, if Government is sure that the success of the industry is fairly assured.

*Q.* Do you say that there should be a wholesale use of such experts but in such a way as not to interfere with vested interests?—*A.* I should not advise that experts be used over-cautiously. There is more danger of that than of using experts too much in India.

*Q.* People have spent their money with no immediate hope of return, and then if we turn round and introduce an expert to set up in opposition, they might not like that; it would not be fair.—*Mr. Mehta.*—*A.* Much would depend on whether there is room for several factories or not. In such cases it might not be altogether wrong to bring out experts.

*President.*—*Q.* In answer to question 5 you say, in reference to Government aid, that your committee would lay stress on methods (2) and (7), and you hope that Government will continue to give preferential purchase to indigenous products. There is no doubt that that is already the policy of Government, which has not been successfully carried out because there have been difficulties in the way of persuading the purchasing officers that suitable articles can be obtained in the country. The war has taught us a good many lessons; things that we never thought could be produced in the country before are now manufactured here.—*Sir V. D. Thackersay.*—*A.* There is one condition attached to this order, and that is, provided that the quality is equally good and the rate is not unfavourable. If you want to start industries in India, how can you expect small, nascent industries to give you good articles at favourable rates compared with the rates of those industries that have been in existence for 50 and 100 hundred years and who have received bounties. Japan, when she starts industries, never says, "I will buy from this industry only if the rates compare favourably." I can give you instances where protective duties of 25 and 30 per cent. are levied and then when Government buy from local factories, they are naturally paying more than they would have to pay if they bought foreign manufactured articles duty free.

*Q.* Your quotation is not correct; it should read, "provided the quality is *sufficiently* good."—*A.* I am glad that that change has been made.

*Q.* There has been no change made; that is in the 1913 rules.—*A.* But in 1913 the change was made in the previous rules. How can we expect small industries to give favourable rates? Government should be prepared, for a certain number of years, to pay a little more for Indian goods of good quality, if they expect those industries to start with a free trade policy.

*Q.* I am afraid we are learning to pay pretty heavily for them, so that by the end of the war we shall have a good deal of practice in paying heavily?—*Mr. Warden. A.* To supplement local industries, if Government could from time to time publish a list of articles required by them, so that Indian merchants may keep such articles in stock. At times an indenting officer has this excuse to put forward that the article he requires and which he would like to buy in India, but unfortunately it is not kept in stock. Now the merchant has all along been kept in ignorance of Government requirements. If from time to time, say, every quarter, a list were published in the Government Gazette, or other authoritative publication, that Government requirements would be so and so for that quarter of the year, and the same next year, merchants would be prepared to keep stocks in hand. This would also lead to big industries being established in India hereafter, and in this connection I may refer the Commission to a personal instance which came into my knowledge when I was travelling in America.

*President.*—Lists have been published of Government purchases through the Stores Department. We had to stop them because they were apparently not of any good. The whole of that question is now under revision again, and lists are being prepared. There are enormous difficulties in the way; in the first place, the list of things is simply enormous. You have no idea. It is of no use publishing a statement of articles of one kind; you have got to publish its size, shape and everything before attempting to keep stocks. We are attempting now to gather together lists of different kinds, so as to give a general idea of the articles that have already been purchased from abroad, and which we are trying now to get in India. That will be done as much as is practicable.

*Hon'ble Sir R. N. Mookerjee.*—*Q.* You say that "it must be one of the conditions of the concession that when any such company is floated, Indian investors should be given opportunity for subscribing to shares and preference be given to their applications at the time of the allotment of the shares." Is that a condition which you would like to have in the Articles of Association?—*A.* The reference is to companies that are not registered in India and where shares are not open to the Indian public to subscribe. They are not put on the Indian market. We say that in cases when help is given by the Indian Government, one of the conditions should be that Indian investors should be given an opportunity to subscribe.

*Q.* Government can have no control over the flotation of companies. It must be controlled by the Articles of Association. I want to know what is the method which you wish to recommend, that the Articles of Association should contain a clause that preference should be given to Indian investors?—*A.* I daresay a method could be found between the Government and the companies.

*Q.* Whatever the condition it must go into the Articles of Association. Don't you think if the Articles of Association were worded like that, it would have the effect of keeping off subscribers?—*Mr. Warden. A.* Some provision may be inserted in the prospectus.

*Sir V. D. Thackersay* (answering Sir R. N. Mookerjee's question).—I do not think so.

*Q.* How would it prevent subscribing in another name, or Indians buying and selling the next day? I am only showing you the impracticability of it.—*A.* If an opportunity is given and if Indian gentlemen subscribe, then the matter ends. The principle here is that people should be given an opportunity.

*Sir F. H. Stewart.*—*Q.* You don't mean to the exclusion of others?—*A.* No. This is only with reference to companies floated out of India, where no opportunity is given to people in India to subscribe.

*Q.* Out of India the Government should not intervene?—*Mr. Warden.*—*A.* There may be restrictions to that effect.

*Sir V. D. Thackersay.*—I quite agree with that statement; we should make that clear.

*Hon'ble Sir Fazulbhoy Currimbhoy.* *Q.* Don't you think that if the Government of India aided a concern from the revenues of the country, Indians must be given an opportunity to subscribe to the capital; for instance, if Government guarantee the dividend, or give a subsidy or bonus to the prospectors, it should be provided that so much percentage of the capital must be allotted to Indians or else the Government should refuse help?—*Sir V. D. Thackersay.*—*A.* Unless the company agrees to this condition, Indian money should not be given for that.

*Q.* Because the help is given from Indian revenue?—*A.* Yes.

*President.*—*Q.* It would diminish the value of your shares, as you would limit the market. —*A.* There are plenty of industries to be started in India, if Government will only help.

*Q.* But would you not limit the market for shares ?—*A.* There is a sufficient market in India for shares.

*Q.* Don't you think that your statement would have more influence with Government if, instead of making this discrimination, you put it in this way ; when help is given by Government to any of these firms, *viz.*, joint stock concerns, it must be one of the conditions of the concession that the company should have a rupee capital, and its registered office should be in India. That is not exactly what you say here ; here you limit it in such a way that it is bound to depreciate the value of your shares by refusing to allow all subscribers ?—*A.* The intention in this is that when help is given by Government in any of these forms, it must be one of the conditions that Indian investors should be given an opportunity ; it is not a matter of compulsion.

*Q.* You said that they should have a preference ?—*A.* Then there is no depreciation. If it is difficult, you give preference by allotment. So far as that reply is concerned, the Chamber sticks to it, but at the same time I agree that it would be a great advantage if additional provision is made by which a company is registered in India, with an Indian board and rupee capital.

*Hon'ble Sir R. N. Mookerjee.*—Don't make it exclusively an Indian board because you will find that it is very necessary for the development of Indian industries that you have one or two Englishmen.—*A.* The Chamber does not object to the whole company being started with Englishmen, provided when application is made for shares, opportunity is given to Indian investors to get those shares.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—He says if Government give any help to any company started in India, if Indian investors apply, they must be given preference up to a certain limit.—*A.* Yes, as investors, if the Government help.

*President.*—*Q.* You speak of allotment of shares ; would you maintain the same proportion afterwards in the constitution of the company ?—*A.* That is not possible ; then the shares will change hands, so that anybody might buy.

*Q.* Then I am afraid this is not a business proposition as it stands. If it is for allotment purposes only, you are encouraging a form of gambling in shares.—*A.* I will give you an instance. The Bombay Tramways Company was started in England. Certain shares apparently were given to Indians to subscribe. There was no gambling. Of course unless you take it for granted that there will be fraud from the beginning.

*President.*—I think if you will ask your committee to reconsider this so as to elaborate it and point out the difference between allotment of shares and the maintenance of a ratio afterwards, you will see how important that becomes.

*Sir D. J. Tata.*—*Q.* Is it not your idea that it is only when a company goes to Government and says it wants help, and when such concessions are given by Government to the company before it is promoted, Government should make a condition that a certain proportion of capital must be allotted to Indians. That is how I read your answer. I see no objection to this except that you say, "preference be given to their applications at the time of the allotment of their shares." By "Indian" do you mean everybody in India, the Englishman in India as well ?—*A.* Of course.

*Sir D. J. Tata.*—Then I don't see what there is to object to.

*President.*—That is not what the word "Indian" means.

*Mr. C. E. Low.*—I think we all agree that it would be entirely opposed to the policy of Government if Government assistance were given to concerns which were not going to admit a decent proportion of Indians as shareholders.—*A.* That is the general idea of these people. It is only a matter of wording.

*Sir F. H. Stewart.*—*Q.* Does Sir Vithaldas Thackersay think that in the case of guaranteeing dividends, there should be a subsequent refund ?—*A.* Yes, when the profits exceed a certain limit.

*President.*—*Q.* Should Government share in the profits ?—*A.* No, I do not think that Government should insist upon profits, but should get its money back.

*Q.* With interest ?—*A.* Yes, after a certain profit has been declared. It is a minor point as far as interest is concerned.

*Q.* It is a very serious point when it comes to guaranteeing 5 per cent. or 6 per cent. ; it depends upon the state of the money market.—*A.* The company will work in order to earn more than 6 per cent.

*Q.* These are not points which your committee has discussed in detail ?—*A.* No.

*Mr. Mehta.*—I think the committee did consider it so far as I remember. It has no objection to Government guaranteeing and recovering with interest, or getting a share of extra profits above a certain percentage.

*President.*—*Q.* Would you define the Government guarantee as either the market rate for the time being, or 1 per cent. less than the market rate for the time being ?—*Mr. Warden.*—*A.* Let it be a fixed rate. Take the minimum rate.

*Q.* When it comes to practical work there are a lot of problems to be worked out.—*Sir V. D. Thackersay.*—*A.* Say the market rate.

*Q.* Do you mean bank rate ?—*Mr. Mehta.*—*A.* In ordinary times it is 5 per cent.

*Q.* What kind of security; do you mean gilt-edged security ?—*A.* Yes, or railway securities or railway shares.

*Q.* We can take any ordinary Government loan.—*A.* The ordinary Government loan rate is rather too low. I should take it higher.

*Q.* Why not take the Government loan rate as your standard ?—*Mr. Warden.*—*A.* There are Government rates now.

*Q.* They work out the same way ?—*Mr. Mehta.*—*A.* I do not mind. I should take the Government rate or a little lower.

*Mr. A. Chatterton.*—*Q.* Would you have any time for these contracts in regard to guarantees ?—*A.* Yes, limited periods.

*President.*—It is quite impossible for us to discuss and work out a scheme now. Each case will vary, and will have to be dealt with separately. We only want to know your general views on this question.

*Question 8.*

*Sir D. J. Tata.*—*Q.* You say, "When definite results are achieved, the factory should be closed if the results are unsatisfactory, and handed over to private capitalists if the results are proved to be satisfactory." How do you propose it should be handed over. Will Government after they have successfully worked a pioneer industry invite tenders for it, or put it up to auction ?—*Sir V. D. Thackersay.*—*A.* We shall have to work up a scheme for that. The idea is when the thing is successful it must be managed by private enterprise.

*Q.* What industries should Government take up in this way for pioneering ? How should they choose them ?—*A.* The glass pioneer industry is necessary.

*Q.* What is to govern Government in their choice ? For instance, this morning we read a very useful monograph on the groundnut industry. Don't you think that a good deal of service could be done by issuing monographs of this kind, bringing them before the attention of various associations like yours, and saying, "Here is a monograph on a particular industry and do you think your association is prepared to circulate it and work it ?" If associations like yours are not prepared to take up such industries, then Government might take them up and work them as pioneer industries. There are many such monographs. Do you think that any associations take notice of these monographs ?—*Mr. Mehta.*—*A.* They have not so far been sufficiently advertised. If they were advertised I have no doubt that use would be made of them.

*Q.* Is that not a thing that the association should take trouble about ? I have seen many good monographs that are published in the papers. People look at the heading and never take any notice of what follows.—*A.* No doubt efforts in this direction should be made.

*Q.* You should indicate to Government what pioneer factories should be taken up.—*A.* We have stated in our evidence that that is the last resort, only when other methods have failed.

*Q.* You do not indicate how Government is to determine what the pioneer industries should be. Don't you think it would be much better if they issued monographs by experts and circulated them through the various associations ? You would need a good number of experts, and Government cannot find 200 experts to deal with various special questions. It is only when they find that an attempt has been made to follow up a special question that they will send for experts. (No reply.)

*Mr. A. Chatterton.*—*Q.* Would you consider a glass factory a suitable pioneer industry ?—*A.* At present; because we know that on our side glass factories have not been successful.

*Q.* Are not some of the existing factories working at a profit ?—*A.* The present are abnormal times.

*Q.* Suppose that Government starts a pioneer glass factory, which manufactures one type of glass at a profit. Do you want it shut up immediately that occurs or do you suggest that afterwards it should be carried on as a demonstration factory ? It might go on for 30 years. In the glass industry it might be necessary to work for 20 or 30 years working out and demonstrating improvements.—*A.* A sufficiently long time, not necessarily 30 years, to work the factory successfully. We have a factory in Gujarat; if there were a Government expert he could take over that factory and help the man.

*Q.* Do you want the Government factory to be shut up as soon as it is worked at a profit or gradually developed till you get to the more advanced stage ?—*A.* It should develop gradually.

Chamber and Bureau.

*Q.* The criterion you put is not that the Government factory pays, but that it can no longer be useful to the industry ?—*A.* The Government can transfer it to private enterprise and it can still go on as a demonstration factory by helping them with experts. I daresay a private company would be very pleased to take it over and allow a Government official to come and help them with new processes.

*Q.* I don't think you are quite logical in your statement. The glass industry is now paying in certain places.—*A.* Because the foreign article is very dear.

*Q.* You state that the factories should only be transferred, if they have been of use to the public generally in the way of developing the industry ?—*A.* Yes, to a certain extent; but if you prove that the factory has been successful, people will copy and make other factories to the extent where they have been successful.

*Q.* Don't you want it to advance ? The most easy way of doing that is to continue the Government factory.—*A.* If it is successful, people will copy it to the extent that it has been successful.

*Q.* You would withdraw your criterion that the mere commercial success of the factory should not be determined. *President.* You are mixing the two things; the pioneer factory and the demonstration factory. You begin as a pioneer factory and you work it till it becomes a demonstration factory ? *A.* If it is a success, to that extent, but it does not prevent you, if there is more scope, from continuing that factory as a demonstration factory for a longer time.

*Q.* So that you will have to modify this statement here. *A.* We will alter it to this extent, *viz.*, that they are necessary in order to extend the scope. The intention is that they continue to be demonstration factories.

*Q.* You transfer it from the position of a pioneer factory, dealing with one simple form of glass to a demonstration factory; then it becomes a pioneer for the next industry, and so on ?—*A.* Yes.

*Hon'ble Sir Fazulbhoy Currimbhoy*—*Q.* Don't you think if you start a factory on the copy of a Government factory, you will develop nothing ?—*A.* They will develop and let Government also develop.

*Q.* Then in the case of the cotton industry, Government can go on developing it on a higher scale and keep it. Every industry can be developed to a still higher stage—it is to start an industry that people are afraid. *A.* In the case of glass, they won't be able to make the finer qualities for years.

*Q.* But remember if you have your new industry as a copy of the Government factory, the Government factory if it continues producing will directly compete with private enterprise, but if the enterprise is once started as you make money you can develop it yourself.—*A.* That point of competition was not considered so far as development is concerned

*Q.* Development may go on for ever. Then you want all these demonstration factories to be Government institutions ? *A.* Not in all cases.

*Q.* But in every case it will be so; every industry can always be developed to a higher stage ? There are new inventions, new processes in every industry.—*Mr. Warden.*—*A.* When Government start factories and they are well established, they should be handed over to private parties, so that those interested may be enabled to work them on a larger and wider scale.

*President.* *Q.* That excludes the rest of the public. How is the public going to have a chance if you hand over Government factories to private concerns ? Nobody else could go into the same industry.—*A.* They may be handed over to private enterprise.

*Sir V. D. Thackersay.* When a demonstration factory is necessary for further development in that case the demonstration factory will have to stand.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* What about further development in that industry ?—*A.* Otherwise there is no scope.

*Q.* Every industry can develop further ?—*A.* This is my opinion, but the Chamber has not considered this point.

*Question 10.*

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* In answer to question 10 you say, "By the starting of industrial banks." Has your Chamber thought of any scheme for an industrial bank ?—*A.* They have not considered any scheme in detail.

*Q.* We would have been very much helped if you had told us what system you wish to adopt in regard to industrial banks. Can you not help us with your personal opinion ?—*A.* I can give my personal opinion, *viz.*, that with ordinary banks the system is they receive short-term deposits and capital is limited to short term, and they are not able to assist industries or invest funds for longer periods than one year. If industrial banks are started with large capital of their own or otherwise raised by long-term debentures, then they can help industries in several ways.

*Q.* Do they need Government help or can they start without Government help ?—*A.* At present we in Bombay are able to start any good concern without Government help.

*Q.* That is in Bombay, but in the case of industries in other parts of India, what sort of Government help would be needed in starting industrial banks ?—*A.* I have not considered that. If properly organized industrial banks are started, Government help may be given by putting a portion of their own funds into such banks, and otherwise if they are well managed they must be at the back of them.

*Q.* With or without interest ?—*A.* That entirely depends upon circumstances. I am not at present prepared to say. In Bombay you may not require any help but in places where they are very backward industrially, you may have to give some deposit without interest or at low rates of interest. It all depends upon local conditions.

*Mr. Warden.*—These industrial banks are necessary in the economic interests of the country. There should be a capital of at least 5 million sterling as a necessary minimum for India.

*Q.* All paid up ?—*A.* All paid up, or as may be required.

*Q.* Will that be a trading bank or an industrial bank ?—*A.* Industrial and trading as well, doing ordinary banking business. In other parts of the world there are large banks.

*Q.* What help should Government give ?—*A.* Government should deposit funds with such banks to a certain extent.

*Q.* Do you know anything about the German banks or the banks in Japan ?—*A.* When on the continent I saw some of these German banks.

*Q.* Should that system be adopted ?—*A.* Yes.

*Q.* What is that system ?—*A.* You must have a representative in different industrial centres. They must be in contact with the trade and industries of those places.

*Q.* What Government help and Government control have they got ?—*A.* They have got the assistance of Government funds and experts are supplied by Government particularly in Germany. I have no knowledge of Japan.

*Q.* Do they subscribe to the capital of the new industries which they take up ?—*A.* I do not know. I cannot say at present.

*President.* *Q.* Can you assure us that the Government banks have the assistance of Government experts ?—*A.* Generally they have. In 1895 and 1900 I was in Berlin, Saxony and Stutgart.

*Q.* You mean to say that if they wanted to put money into a new tannery they could send for an expert in leather ?—*A.* The members of the Board are Government experts; they are Government Directors.

*Q.* Are they Government officials ? We have never had any information of that sort before. Can you give us the name of the bank ? This is entirely at variance with the information we have had so far.—*A.* I have notes* on this, with which I can furnish you after the sitting.

*Mr. C. E. Low.*—*Q.* Have you any knowledge of banking law, with reference to making money more available for industries, or general bank busines ?—*A.* I have, with regard to general banking business.

### *Question 12 (a).*

*Sir D. J. Tata.*—*Q.* In regard to question 12 (*a*), may I ask why you have not answered it ? Have you no suggestions on this point ? Don't you think trade guilds are rather important and that they would prove a solution of some of our difficulties and enable us to help ourselves instead of going to Government ?—*Sir V. D. Thackersay.*—*A.* Our knowledge of this is not quite full, and we are not prepared to give definite information on this.

### *Question 18.*

*Sir F. H. Stewart.*—*Q.* How long would you like to keep these results unpublished ?—*Sir V. D. Thackersay.*—*A.* That is a very difficult problem. Suppose an expert in the oil industry is employed by Government and his advice is asked for by a factory. He goes there and shows them certain methods and the results of the working of that factory are better. We say that he should not at once come out and publish the work that he has done. At the same time, if another industry asks for him he should not say that because he has been in a previous factory that knowledge of his should not be employed in the new one. What we intend is that whatever knowledge he gets by going to that factory he should not withhold from other factories.

*Q.* I want to know if there is to be a definite period—3 years or 5 years or 10 years, just as in the case of a patent.—*A.* If the expert has made discoveries and has been paid a fee by that factory, I daresay they would for a certain time like that be kept secret

---

* *Vide* Appendix printed after oral evidence.

*Hon'ble Sir R. N. Mookerjee.*—*Q.* For what period, 5 years or 10 years?—*A.* It all depends upon the industry; generally from 3 to 5 years ought to be sufficient; but not if the expert has found things out at Government expense.

*Sir F. H. Stewart.*—*Q.* You are quite clear that the knowledge should be used for the public good, but you want at the same time to prevent exploitation of the work already done by those who started the enterprise?—*A.* Suppose the man has been lent at Government expense, and while experimenting he has found out certain things. He is quite free to say then.

*Mr. G. A. Thomas.*—*Q.* Will you not go further and say he should be *bound* to communicate?—*A.* Yes, we expect that when his advice is asked for.

*Q.* It should not be left to his choice; he should be *bound* to?—*A.* Yes.

*Sir D. J. Tata.*—*Q.* I understand you mean that when a Government expert's services are lent, and nothing is paid to him privately, the result of the inquiry should be published?—*A.* No, not published but made available to others.

*Q.* In the case of a private company which borrows the services of an expert and pays for special work, the results of that work should be their private property for a number of years.—*A.* Yes.

*Question 22.*

*Sir D. J. Tata.*—*Q.* If you refer all these inquiries to the United Kingdom, don't you think that knowledge of local circumstances is necessary, and that they may not be able to meet all your requirements?—*Sir V. D. Thackersay.*—*A.* Our previous reply says we must have a Scientific Department for India; but for special subjects it may be necessary to get the help of the United Kingdom. They may have greater experts and a large number of them.

*Question 24.*

*Sir D. J. Tata.*—*Q.* Who do you suggest should submit these questions; the Government or the bodies concerned, or industrial concerns?—*Sir V. D. Thackersay.*—*A.* The industries or bodies concerned.

*Q.* Through Government?—*A.* Yes.

*Question 25.*

*Mr. G. A Thomas.*—*Q.* You say there have been three surveys. Can you point out any tangible results from those surveys?—*Sir V. D. Thackersay.*—*A.* I do not say that tangible results can be shown.

*Q.* In your opinion have there been any results from these three surveys at all?—*A.* I don't say that the knowledge has not been used in any way. I have no personal knowledge of the leather or oil industries, except that two or three mills have been started.

*Q.* So far as you know they have had no practical results at all?—*A.* I am not prepared to say that. The oil industry must have utilized the information given in the monograph.

*Q.* You say they "must have"; you have no precise information on the subject?—*A.* I have not worked an oil factory, and am not prepared to say; nor have I worked a tannery.

*Q.* Do you think the Government monographs are sufficiently well known to the public?—*A.* The answer will be given by those interested in those industries. They will be able to say whether they have been useful or not.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* What about the hand-loom weaving; what researches have been made with regard to that?—*A.* A special officer was appointed, and he went through the districts where hand-looms are used. He made a report; I have read it with great interest, but have no interest in the hand-loom industry.

*Q.* Have Government given any grants towards helping these hand-looms?—*A.* I daresay; I have heard of some. Those who have received help say that they have done a great deal of good work.

*Q.* What is your experience?—*A.* I have no experience. I have heard that Mr. Churchill got a lakh or a lakh and a half of rupees.

*Question 27 (b).*

*Mr. A. Chatterton.*—*Q.* In the Bombay Presidency, there is a special Agricultural Engineer, who is Consulting Engineer, advising in regard to the installation of machinery and plant. Have you any knowledge of his work?—*Sir V. D. Thackersay.*—*A.* As I said, these remarks apply generally to industrial enterprises. For agricultural purposes there may be exceptions. Agriculturists are poor and are not able to judge for themselves, and any Government help would be useful; but this plant and machinery mentioned here applies to industrial concerns.

*Q.* In the case of these small concerns, would you object to consulting engineers purchasing plant ?—*A.* On principle we are against it. It is quite open for a consulting engineer to say "There are so many firms here in Bombay ; call for tenders, and if you will show them to me, I will give you advice."

*Q.* What is your objection ? *A.* On principle it is wrong ; if it becomes the general rule of Government that they should be purchasing agents, it would not be possible as Government officials have lots of work to do. So far as the poor agriculturist is concerned, it is different ; the Government official may buy ploughs for them. Our reply concerns industrial enterprises on a large scale.

*Question 28.*

*President.—Q.* I understand you have not much faith in commercial museums ? *Sir V. D. Thackersay.—A.* That must be expected. I visited the Calcutta museum, and think there is great room for improvement ; for instance, they need a bigger building.

*Mr. C. E. Low.—Q.* Bigger than the one in Council House Street ? *A.* Council House Street Museum has only one room.

*Q.* Do you think Council House Street is a suitable location in Calcutta ?—*A.* The space is very limited.

*Q.* Is it in the right part of Calcutta ? Putting it in Bombay, would you prefer the site of the Secretariat, or that of the Cloth Market ?—*A.* I would go more in the town, say, about the Money School, on the outskirts of business ; not in the thick of it.

*Hon'ble Sir Fazulbhoy Currimbhoy.—Q.* What line of development do you suggest ? *A.* They have limited space. They should have more space and more articles ; it requires great expansion.

*Mr. A. Chatterton.—Q.* In regard to these commercial museums ; don't you think that they expose the industrial weakness of the country rather than its strength, and are likely to do more harm than good ?—*A.* We have found that in the past foreigners have taken advantage of them. But they can always get information which they want in many ways. No harm has been done, but more advantage might be taken of them in India.

*Sir D. J. Tata.—Q.* Is it not a fact that more advantage has been taken by our commercial rivals than by ourselves ; and the Japanese and Germans know more about our trade than we do ourselves ?—*A.* It is better that we both know, rather than they only, because they can always get all the information they want.

*Question 29.*

*Hon'ble Sir Fazulbhoy Currimbhoy.—Q.* What kind of museums do you want ? Should samples of all manufactured articles in this country along with their prices be exhibited in the museums ? *Sir V. D. Thackersay.—A.* Yes, and the name of the manufacturer to whom, if any merchant wants, he can apply.

*Q.* Samples of foreign made articles should also be included ?—*A.* Only such of them as could be made here ; samples which would be useful to India.

*Q.* Do you also want samples of articles that Government generally purchase ? *A.* They would naturally be included there.

*Sir D. J. Tata.—Q.* Prices, as you know, keep changing. Would you have someone constantly watching prices in order to make the necessary alterations in prices ?—*A.* I think the manufacturers themselves will keep informing you of changes in prices, as they themselves will be very keen to get orders.

*Q.* Samples keep changing too. The mills make samples of one kind of article one month and then change.—*A.* The thing is that the particular knowledge is there.

*President.—Q.* Are you convinced that it is practicable to have the prices kept up ?—*A.* No. Prices are only a criterion. The manufacturers will be approached by the purchasers.

*Q.* I know of some manufacturers who object to prices being exposed that way. In some cases they are so high that they think they would discourage applicants.—*A.* The object of this exhibition is not to sell but to give knowledge to the purchasers that such manufactures exist.

*Question 30.*

*Sir F. H. Stewart.—Q.* Are the Bombay Swadeshi Co-operative Stores a commercial success ?—*Sir V. D. Thackersay.—A.* It is successful in Bombay. There are two in Bombay, which are both successful. One is a limited and the other a private firm. They have done great service by introducing Indian goods to customers.

*Hon'ble Sir Fazulbhoy Currimbhoy.—Q.* You say, "The committee do not deem it advisable that Government should start such emporia themselves. This work should be left to the public." In places, where there is not so much commercial enterprise, and where there are many people who make these small articles, don't you think that if there were a Government department who could sell the products and encourage the people, that would benefit the small industries ?—*A.* I do not think so. It is not possible. I do not think Government officials can successfully manage a job like that. The exhibition is all right, but not such a business as that of shopkeepers.

*Sir D. J. Tata.*—*Q.* Not even the Civil Service ?—*A.* The Civil Service would be too expensive for small shops.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* Do you think that a Government official would not be a proper person to sell the articles ? *Mr. Mehta.*—*A.* How is he going to get hold of other people ? They are selling them in Cawnpore and other places.

*Q.* Are there agencies of these stores up-country ?—*A.* They have shops.

*Q.* The Swadeshi Stores have their agents outside Bombay ?—*A.* In Poona they have one.

*Sir D. J. Tata.*—Every bori's shop is practically a Swadeshi store.

*President.*—*Q.* Do you confine yourselves, in Swadeshi Stores, to the sale only of Swadeshi articles ?—*A.* In this store they do.

*Question 33.*

*Mr. C. E. Low.*—*Q.* Do you consider it possible for an exhibition to be self-supporting outside a Presidency town ?—*Sir V. D. Thackersay.*—*A.* In Presidency towns we have found they could be made self-supporting.

*Q.* Outside presidency towns ?—*A.* I have no experience, but I do not think they could, because the gate money in large towns defray largely the expenditure, but in smaller places the gate money would not be sufficient, as the expenses are the same.

*Question 34.*

*Mr. C. E. Low.*—*Q.* In regard to the question of trade representatives, you say, "Their duty should mainly be that of the promotion and development of exports of Indian manufactures by enabling Indian manufactures to introduce their wares in foreign countries." That is all right so far as it goes, but what about the export of Indian raw materials ?—*Mr. Mehta.*—*A.* We hope that there will be less and less export of Indian raw materials.

*Q.* But if you don't export you cannot get money for your industries ?—*A.* That is why we have stated that their duty should mainly be that of the development of exports of Indian manufactures.

*Q.* Don't you think that there is something in helping the small Indian exporter to get his name recognized and his responsibility guaranteed, etc., and help him to get into direct relations with foreign buyers ?—*A.* Certainly, he would attend to that too.

*Q.* You think that would be desirable ?—*A.* Yes.

*Q.* As an interim position working up to the time when we will manufacture most of our raw material ?—*A.* Yes.

*Question 38.*

*Mr. C. E. Low.*—*Q.* Why do you wish the Stores Department established in Delhi ?—*Sir V. D. Thackersay.*—*A.* Because when there is a Stores Department in England it means that India has to purchase articles through the India Office.

*Q.* Why Delhi ? Why should the Stores Department be at the headquarters of the Imperial Government ?—*A.* We have mentioned Delhi, but Government can select Calcutta or Bombay. We mean any place in India.

*Sir D. J. Tata.*—*Q.* By Delhi don't you mean a central place ?—*A.* Delhi was mentioned because the Government of India has its headquarters at Delhi.

*Question 41.*

*Mr. G. A. Thomas.*—*Q.* You say, "As there are practically no facilities for acquiring land for industrial purposes, it has not been practicable to start those industries, for the successful working of which land has to be acquired." Can you quote any instances ?—*Sir V. D. Thackersay.*—*A.* It was the sugar industry that was in the mind of the committee. We were told that the industry could not be started until land was acquired.

*Q.* In writing that you were thinking of the sugar industry only ?—*A.* Yes.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* Not any other industry ? Suppose if to-day near the railway line at some up-country place a man wanted to start a cotton mill, and if the owner of the land would not sell it to him, then should Government acquire this land ?—*A.* The Government has got power under the Act to acquire if they are satisfied that the land is necessary.

*Q.* Do you think under the present Act Government have got sufficient power ?—*A.* Yes.

*Mr. G. A. Thomas.*—*Q.* You think that if, for instance, a bobbin factory wanted a site, that Government should acquire the site ?—*A.* If Government found that that was the only suitable site where the factory could be started, then Government should.

### *Question 44 (b).*

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* You say, "Very little has been done in the textile industry to improve the labourers' efficiency and skill." In what way do you want more to be done ?—*Sir V. D. Thackersay.*—*A.* We say that we have not done anything special. We have not started special schools ; at least we have started schools, but they have not been fully utilized by the boys.

*Q.* Do you think that primary education should be made compulsory ?—*A.* That is the only way in which our experience tells us that the boys will go to school. This primary education should be compulsory for every child in the place.

*Sir D. J. Tata.*—*Q.* Where is it to be imported ? In the mills or outside ?—*A.* If there is compulsory education for mill-hands there should be for other boys in that town also ; not specially for mill boys, otherwise there would be difficulty in the matter of labour supply.—*Mr. Mehta.*—*A.* With regard to question 44 (*b*) the labourers now have really no opportunity whatever of improving their efficiency or circumstances. In the first place, the books are written in English ; they have nothing in the vernacular by which they can study, and night schools are outside their factory hours.

*Q.* You think industrial classes and schools should be established ?—*A.* Yes, and teaching should be in the vernacular.

*Sir D. J. Tata.*—*Q.* When will they find the time ?—*A.* The half-timers can certainly do that now, the boys.

*Q.* You will wait till they grow up before they can acquire any special skill ?—*A.* No, I should start with them at once, the half-timers.

*Q.* But to get the benefit of it you must wait till they grow up ?—*A.* No, even in the case of the present operatives, the half-timers, you will have to wait till they grow up to get the benefit. With regard to the grown-up operatives they can find the time, although we are looking forward to shortening the hours of labour.

### *Question 45.*

*Sir D. J. Tata.*—*Q.* Among the things you mention as particularly essential for improving the labourers' efficiency is redemption of debt. Is anything being done in regard to this ? Did not the Servants of India Society try something in that direction ? What has been the result ?—*Mr. Mehta.*—*A.* It has only been in existence for a very short time. There has really not been sufficient time to get any results. It has only been in existence for one year or two.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* You also speak of "better wages." What do you mean by that ?—*A.* They have got better wages now.

*Sir D. J. Tata.*—*Q.* Do you think these better wages are having a good effect already in the direction you mention, *viz.*, in improving their efficiency and skill ?—*A.* So far as I can see, better wages have a good effect in large cities, because they are able to spend their money in proper directions ; but in up-country towns I do not think that is the case.

*Q.* In proper or improper directions ?—*A.* They amuse themselves better, and have more facilities for amusement. But in up-country places like Broach, they have no scope for amusements, and higher wages have not meant a higher standard of living. There is perhaps more idling.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* Have you any experience of the Bombay labourers after the rise in wages ?—*A.* No, I have no experience.

*Sir V. D. Thackersay.*—They are working the same as they did before. There is no improvement.

*Sir D. J. Tata.*—*Q.* There is no deterioration either ?—*Sir V. D. Thackersay.*—*A.* No.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* Are they working more efficiently ?—*A.* Just the same. I don't find that they are working any worse or better.

### *Question 47.*

*Mr. C. E. Low.*—*Q.* Have you had any experience of students of the Victoria Jubilee Technical Institute ?—*Sir V. D. Thackersay.*—*A.* Yes.

*Q.* How do you find they did ?—*A.* We have one head weaving master working very satisfactorily and also an engineer.

*Q.* What practical experience did they have after leaving the Victoria Jubilee Technical Institute and coming to you ?—*A.* They had no practical experience. They received at our mill their practical experience.

*Q.* How long has the weaving master been with you ?—*A.* Nearly 5 years.

*Q.* At first did you employ him on a responsible basis or as a learner ?—*A.* He came as an assistant into the department on a small salary as an apprentice. He kept factory hours and worked exactly like other people.

*Q.* We have heard complaints on the part of some witnesses that these boys when they come out of the Technical Institute don't like to keep factory hours, and it was therefore suggested that it would be better to take them earlier and give them a practical course before they went to the college : what do you think of that idea ?—*A.* There was a suggestion made to that effect, because in the third and fourth year in the college they were given an opportunity to go to a mill. Some mills do take apprentices in that way to give them more experience in the factory. The course is a four-year course ; the first two years they must have a theoretical knowledge ; in the third and fourth they must be given an opportunity to go to a factory and see things for themselves.

*Q.* The complaint was that even some, with that amount of practical work which they did when they came out of the institute, did not like to keep factory hours.—*A.* There may be some instances, but in our case they did the work we gave them, and now they are getting four times the wages they started with.

*Question 48.*

*Hon'ble Sir R. N. Mookerjee.*—*Q.* You say, " The suggestion made by Principal Dawson of the Victoria Jubilee Technical Institute in his evidence before the Public Works Committee that practical training should begin at the age of 14 appears worthy of consideration."—*Sir V. D. Thackersay.*—*A.* That is Mr. Dawson's opinion.

*Q.* How long has he been principal of that college ?—*A.* Many years.

*Q.* You think that it is best to start practical experience at an early age ?—*A.* Yes, particularly in some of the lines, like engineering. An early training is the best training.

*Question 49.*

*Mr. G. A. Thomas.*—*Q.* You say, " Mill-hands, it appears do not take adequate advantage of these night schools, as after 12 hours of physical exertion they are too much exhausted to be attracted to night schools." Do you think then that if the hours of work were reduced from 12 to 10, they would attend night schools ?—*A.* I am not prepared to say that.

*Q.* You say, " There is a great need however for extending the number of night schools." But if the night schools don't attract mill hands, what is the use of extending the number ?—*A.* I do not know what was in the mind of the committee. I am not prepared to reply to that.

*Sir D. J. Tata.*—*Q.* With reference to this question, you say, " after 12 hours of physical exertion they are too much exhausted to be attracted to night schools." Do I take it from this that you are in favour of shorter working hours ?—*A.* No, I am not in favour of shorter working hours.

*Q.* Do you prefer to work them for 12 hours ?—*A.* Do you ask me as a mill-owner or as a member of the committee ? If you make mills work in competition with foreigners, then 12 hours are necessary.

*Q.* What I mean is this : Take the question of competition. Do you think by working them 12 hours, you are getting the best out of them ?—*A.* Yes.

*Q.* Then when they are in the mill for 12 hours, they give you 12 hours' work ?—*A.* No, they work 8 or 9 hours.

*Q.* Then why keep them confined in the mill for 12 hours ? Why not let them work for 8 hours, and give them more time and leisure ?—*A.* We have tried that ; on certain holidays we have worked less, but their habit is that they want to go out of the mill.

*Q.* Why not improve on that by giving them shorter hours ; so that they may have a little more time for the amenities of life.—*A.* We have found that they are not able to produce the same amount of work in shorter hours, though proportionately they give more. In 12 hours they give certainly more than in 10 hours, as the actual efficiency of machinery obtained under 12 hours is such that shorter hours will not compensate for longer hours by a slightly better efficiency.

*Q.* You have to consider the future also. Don't you think that by giving your labour better conditions of work, you will in course of time succeed in getting production in 10 hours, which you are getting in 12 ?—*A.* If the hands do not loaf.

*Q.* You yourself admit that instead of working 12, they work only 8 ?—*A.* I have seen other people argue like this, but have never seen a mill-owner working 8 hours. I as a mill-owner have found that in 10 hours they did not do as much work as in 12 hours.

*Q.* Do you think they could work 8 hours at a stretch, if they are put to it ? - *A.* They cannot work 3 hours in a stretch in our Indian climate.

*Q.* By experience I have found that on an eight-hour working day we have had very good results. You could have two shifts of 8 hours ? —*A.* I daresay it would be very good, but we have not got the number of workmen required for two shifts ; we are short of labour even now.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* I suppose you generally attend your mills ?—*A.* Not so much as I used to do in my young days.

*Q.* Your experience is that a man on a stretch cannot work more than 3 hours continuously ?- *A.* Yes.

*Q.* Suppose you give them 8 hours work, they would not work continuously for all this time.—*A.* The time lost is in loafing about.

*Q.* Do you think you have sufficient control over your men to make them work ?—*A.* We have no control.

*Q.* Do you think that by working shorter hours you will be able to compete with imported articles ? *A.* Under present circumstances of our labour, no.

*Hon'ble Sir R. N. Mookerjee.*— *Q.* In answer to question 47 you say, "Students who have obtained diplomas from the former institute are on the whole found to be satisfactory." What is their training ? *A.* Weaving.

*Q.* That training does not want so much of practical experience and workshops training as in mechanical engineering ? - *A.* There also it has to be practical. It is of a different character.

*Q.* You do not know of any students from that institute who have come out as mechanical engineers or foremen ? —*A.* I have not taken up raw students from that institute in our mills, but I have engineers who have passed from that institute and served elsewhere.

*Question 50.*

*Sir F. H. Stewart.*—*Q.* The answer to questions 56 to 62 provides for the formation of a Board of Industries. What about this Board of Industries you speak of in reference to this question ?- *A.* This is for educational purposes, and the other is for commercial purposes.

*By Mr. Thomas.*- Is not the Council you refer to in answer to question 50 in existence already ?—*A.* There is the governing body of the Victoria Technical Institute.

*Q.* Is there not a Committee for Direction of Technical Education ?- *A.* Yes.

*Q.* Is that not composed in much the same way ? There is, of course, the Indian Merchants' Bureau there.—*A.* The first four are the same so far as the Technical Institute is concerned.

*Sir F. H. Stewart.*— *Q.* You will have the Director of Industries on this board, too, suppose, though you do not say so ?—*A.* Yes.

*Q.* Do you think there is sufficient representation of the employers there ? —*A.* There are seats provided for that purpose, that is, 5, 6, 7 and 8.

*Q.* Whom would you place the technical education under ?- *A.* Under the Industrial Department or the Director of Public Instruction ? *A.* We have said there, the Board of Industries.

*Q.* That will be in full charge ? *A.* The technical instruction will not be under the Education Department.

*Question 51.*

*Sir F. H. Stewart.*— *Q.* Take the case of an ordinary commercial firm which does not want assistance from Government in any way. How are you going to persuade such commercial firms to take these men as apprentices ? *Mr. Warden.* *A.* Years ago, firms did take apprentices, but for some time they discontinued taking them and they took junior clerks. The firms are not taking apprentices now.

*Q.* Why have they discontinued ?— *A.* Most of them get cheap European assistants from England. Previously it was very expensive to get European assistants, but nowadays they get cheap assistants and so they do not employ Indian apprentices.

*Q.* Are these graduates in commerce willing to start at the bottom ? - *A.* They would be if sufficient inducement is given to them.

*Q.* What do you mean by sufficient inducement ? —*A.* If there are prospects of rising.

*Q.* That would depend upon themselves, would it not ?—*A.* Quite right. If they qualify themselves, suppose they have no prospects of rising higher. The European firms who would require them get good European assistants for Rs. 250 and 300. That is the great difficulty nowadays. Years gone by, they could not get good European assistants for under Rs. 500, but now they get men for Rs. 250 with prospects of rising higher. In some banks there are well qualified Indians who have had 10, 20 years standing, but they very seldom get a salary higher than Rs. 200. So to that extent they have no prospects before them. Graduates if they had prospects before them would join most of these firms and prove very efficient hands.

*Q.* Does the Graduate in Commerce pass any examination ?—*A.* He passes an examination in theory. In theory they are very proficient, but in practice they are found wanting.

*Q.* Are they willing to begin from the bottom in office ?—*A.* They are willing provided they have prospects before them. If there are no prospects then they are rather reluctant. The first batch of graduates was turned out last year by the Commercial College and all got employment, and they are taken up very readily on a higher salary than the ordinary B.A., and the course is four years from matriculation. The course for the ordinary B.A. and for this is the same.

The ordinary B.A. gets Rs. 50, and a graduate of the College of Commerce gets something about Rs. 100. I wanted one graduate for my concern, but I could not get one because the Principal said that all the graduates had been already employed. That is a good sign.

*Q.* Is there a large number of students ?—*A.* Ninety passed last year.

I do not know this year probably about 70 or 80.

*Hon'ble Sir Fazulbhoy Currimbhoy.* *Q.* Mr. Warden, when you say that they have no chance, you mean in European firms ?—*A.* Yes.

*Q.* And not the Indian firms ?—*A.* No. But there are large European firms.

*Q.* There are large Indian firms too ?—*A.* They have some chance.

*Q.* I suppose every chance.—*A.* I refer particularly to the banks and the European houses.

*Q.* But they are private firms. They could employ anybody they liked ?—*A.* Quite right. Government has nothing to do with it.

*Q.* You say Indians do not draw more than Rs. 250 in the banks. What banks ?—*A.* It is no use giving names. Generally speaking.

*Q.* There are some banks who surely give more than Rs. 250 to Indians ?—*A.* There may be. It would be rather invidious.

*Mr. C. E. Low.*—*Q.* In the first place, about this point which was raised by Sir F. H. Stewart, I suppose it is quite reasonable that a man after he passes his B.A. examination in commerce, should be ready to begin at the bottom in office work and work up his prospects. But do you really contemplate his taking up a line in which he could obtain some technical skill as supervisor or skilled manager ? The man after doing a four years' course will have to start at the bottom of another course of three or four years to obtain the skill in order that he may become supervisor or manager ?—*A.* When a man has received that amount of education and culture he will be able to acquire the details in a much shorter time.

*Q.* Technical details like that of mechanical engineering ? What sort of supervisor or manager do you mean ?—*A.* Supervisor in office.

*Q.* When you say, supervisor or skilled manager, I thought you meant technically skilled man.—*A.* No.

*Q.* As between answers to questions 51 and 52 there appears to be some discrepancy. You say at the end of answer to question 51 "The Government may well devise some such scheme under which a certain number of students should annually be sent to foreign countries to obtain training, specially as managers and supervisors of all grades." At the beginning of answer to question 52, you say, "As before mentioned Government should institute scholarships for persons who have worked in this country as supervisors and managers to study conditions and methods in other countries." Do you mean the same thing, or are they two separate lots of people ?—*A.* For getting education in other countries. The chamber had probably in view the system adopted in Japan.

*Q.* I want to know what is the meaning. Could you clear up the discrepancy between the answers to the two questions ? It is not quite clear whether it is a different class of people.—*A.* It means more in the industrial line and in the technical line.

*Q.* Do you mean two sets of scholarships, one for students and another for men who work as supervisors or managers ?—*A.* Only for students.

*Q.* And do you mean students with technical knowledge ?—*A.* Yes.

*Question 52.*

*Sir F. H. Stewart.*—*Q.* Is there only one course, or are there separate courses for industries and commerce ?—*A.* In the College of Commerce there is only one course.

*Mr. Mehta.*—Some of the students who joined the College of Commerce may go to the technical school. You know they are entirely different. One deals only with commerce and the other with industry.

*Q.* Of what age are these students ?—*A.* Not less than seventeen.

*Q.* And would that be about the time that they go to the technical institute also ?—*A.* Yes.

*Q.* They must be matriculates ?—*A.* Yes.

*Question 53.*

*Sir F. H. Stewart.* I should like to draw attention to the scheme that has been submitted by Mr. Padshah about the Technological Institute at Sakchi.

*President.*—The Commission visited Sakchi and we heard that We will take it up again a little more thoroughly, not only with regard to iron and steel, but the whole of engineering—the question of establishing a central institute somewhere in that district. We shall not forget that.

*Question 54.*

*Mr. Warden.* With regard to these mechanical engineers the system of examination in different centres is very varied. For instance, in Bombay the examination is much more stiff and severe than in the United Provinces. An engineer from United Provinces is not allowed to work in Bombay because the standard of examination is quite different. I wish to bring to the notice of the Commission the desirability of having uniformity in these mechanical examinations, and securing the interchange of engineers from different parts of India.

*Mr. G. A. Thomas. Q.* They do not require certificates in Madras ?—*A.* No. But in the United Provinces and Bombay they require certificates.

*Q.* They recognize Bombay certificates in United Provinces ?—*A.* Yes. But the United Provinces certificates are not recognized in Bombay. A man who has passed the first class in United Provinces would not come up to the standard of the man who has passed in second class in Bombay. This sort of anomaly should be removed.

*President.*—*Q.* We have had a good deal of evidence about it from the engineers, the inspectors of factories and the inspectors of boilers.—*A.* I say it from my own experience as a factory owner.

*Questions 56 to 62.*

*Mr. C. E. Low.*—*Q.* You agree that care should be taken to avoid wasteful overlapping between one province and another, that is to say, they should not fritter away their energies on research which is going on already, and arrangements between the provincial and the imperial departments and between the provincial departments themselves must be made to obviate that. I suppose you realize that ?—*Sir V. D. Thackersay.*—*A.* Overlapping must be ensured against. The idea is that the institute which is in Bombay should pay more attention to some of the industries which are in that locality, where they can make investigations with greater facility.

In Madras and in Bengal they should pay special attention to industries there.

*Q.* It is not only that. Is it not a question of staff ? Certain things cannot be taken up without a rather extensive staff of experts in several branches of industry, and when you get a thing like that, which applies to several provinces it would be a great waste to have a number of provinces each employing four or five experts in a particular industry. That is a case in which it could more suitably be taken by the Imperial Institute ?—*A.* Yes.

*Sir F. H. Stewart.*—*Q.* You think that the Director of Industries should be the Secretary of your Board of Industries ?—*A.* That we have said.

*Q.* That might apply to the Bombay city, very well. In Bombay you have got a large number of capable and interested men who can form a representative Board of Industries, but in other provinces which are not so well developed, it might perhaps be better to give executive power to the Director and have the committee advisory ?—*A.* In most of the Presidency towns it will be quite possible to get sufficiently advanced men to join the committee, in Bombay, Calcutta and Madras.

*Q.* You think you could get leading businessmen to serve on such a committee ?—*A.* Yes.

*Q.* It will mean giving up a great deal of their time ?—*A.* I daresay that public spirited men who would work would be found. After all, this will be an advisory committee to a certain extent, and I think it will meet when there is any question of policy or something of that kind is discussed, and the secretary will be given power as to the usual routine work.

*Q.* What will be the relation of this committee to the Government ?—*A.* If certain funds are provided by Government, this committee will have power to dispose of the funds.

*Q.* And would the committee itself have free access to the Local Government ?—*A.* It will have free access to the Local Government only through the Director.

*Mr. G. A. Thomas.*- *Q.* The Director will be the executive officer of Government ?—*A.* He will be the executive officer of Government.

*Q.* He will also be the secretary of this board ?—*A.* Yes.

*Q.* And that board will exercise executive powers ?—*A.* With regard to budgetted funds, and not with regard to the details of work.

*Q.* You say that the Board of Industries should be not merely advisory but should have executive powers with budgetted funds.—*A.* With budgetted funds. It will be on the lines of Bombay municipal administration. The corporation has budgetted funds and the executive officer, though appointed by Government, is there to carry out the orders.

*Q.* The executive powers begin and end with the preparation of budget ?—*A.* And the general policy.

*Q.* They will have no real executive powers ?—*A.* No. No executive powers in that sense.

*Q.* Should they be a paid body or purely honorary ? *A.* That is a matter which we have not considered. It entirely depends on how much work they have. If there is a lot of work, it will be just like the Port Trust Board or the Improvement Trust Board.

*Q.* They will get fees for attending meetings ?—*A.* If there is a lot of work. If there is occasional work only I do not think there is any necessity to pay fees.

*Q.* I do not exactly understand what you mean by executive powers with budgetted funds. Is the Government to make an allotment to them to spend as they liked ?—*A.* Government would allot so much money.

*Q.* Will Government make provision for industries and ask the advisory board how to spend it ? Will it be a purely advisory body advising how they should spend the money provided ? *A.* If Government is to accept their advice it is better that the board has independent power to spend the amount and the executive officer of Government will naturally spend that.

*Q.* Will the board also issue orders to the Director telling him what to do ?—*A.* Suppose the board allots a certain sum for a certain industry the executive officer, who is the Director of Industries, will carry out their orders.

*Q.* He will be the executive officer of the board ?—*A.* Yes.

*Q.* And executive officer of the Government ?—*A.* Yes. There is no inconsistency in that.

*Q.* He will be under dual control ?—*A.* When Government has once sanctioned funds for the purpose the advisory committee composed of several representatives are the best people to judge whether and where to spend. Government must take somebody's advice, and we say that this committee is a representative body whose advice Government should follow.

*Q.* Is there not a difference between giving advice to Government and directing the Government officer to do certain things ?—*A.* Government must follow somebody's advice and we say that it should follow this committee's advice rather than that of any other individual.

*Q.* The advice of the board should be binding upon the Government ?—*A.* Consistently with funds. It is for Government to say how much funds they will place at the board's disposal.

*Q.* If the Director of Industries did not agree with their advice, would he be at liberty to put his views before the Government ?—*A.* We say that this advisory body is more able to advise the Government than one member of Government, and that is the view we hold.

*Q.* Will there be any staff under the Board of Industries ?—*A.* There will be a staff under the Director of Industries.

*Q.* And not under the Board of Industries ?—*A.* I think the same staff which is under the Director of Industries will do the work of the board.

*Q.* Will the Board of Industries have any control over the Director of Industries staff ?—*A.* No control.

*Q.* Will they not be a purely advisory body then ? I do not quite follow what organization you propose.—*A.* We take the similar instance of a municipal corporation. They are a body, and there is the executive officer of the municipality, that is the commissioner, and he carries out the orders of the corporation.

*Q.* Has the municipality any control over the establishment ? Would the Board of Industries create appointments ?—*A.* Within the funds. They cannot compel Government to spend extra funds. That is my view of it.

*Q.* It will not be an advisory body, but an executive body? One time you say one thing and at another time another thing. Are they an advisory body or an executive body?—*Mr. Mehta.*—*A.* We say executive body.

*Sir V. D. Thackersay.*—Executive power with budgetted funds.

*Q.* Can they appoint Government servants? Can they create pensionable appointments under Government?—*A.* Any appointment under that body.

*Q.* They will appoint their own servants?—*A.* Yes.

*Q.* There will be one establishment under the Government and another establishment under the Board of Industries?—*A.* This establishment will be under the Director of Industries, and he is the Secretary of the Board. The board itself appoints its staff.

*Q.* And not the Government staff?—*A.* No. The Director of Industries will be the servant of the board and not of the Government in so far as the work of the board is concerned.

*Q.* At one time he is a servant of the Government and at another time of the Board of Industries, and a part of the staff will be under the Government and a part under the Board of Industries?—*A.* He will be under the board.

*Q.* The Director of Industries will be a servant of the board and not a servant of the Government?—*A.* No.

The whole difficulty arises from the fact that there should be some body to advise Government, and the committee's idea is that, so far as the board is representative, it should have control over the funds. It is not a question of controlling the Director of Industries, but of control of the expenditure by a representative body. What we wanted to avoid was the board giving its advice, but the Government saying no to a proposal submitted by the board.

*President.*—*Q.* It is not merely a question of one department, but the other departments concerned have to be consulted.—*A.* The Chamber thinks that the advice of a representative body should be followed and that this proposal should not be thrown away on the question of details.

*Q.* You may make a proposal to the Board of Industries which will interfere with the whole policy of the Forest Department and the Forest Department may object and by your scheme you break the machinery of Government?—*A.* We mean that the advice of the representative committee should, so far as budgetted funds are concerned, be followed.

*Q.* You mean that this committee should not be purely advisory, merely to pass resolutions and nothing more. You want something more than that?—*A.* Yes, and the whole scheme must be prepared in accordance with that idea.

*Q.* And it will have to be fitted in with the Government machinery?—*A.* Yes.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* As far as I have understood your scheme, you desire control over budgetted funds. Suppose the Government budgets for one year Rs. 5,000 or Rs. 10,000 and you want more than Rs. 20,000 for starting new industries, you cannot do anything in that year?—*A.* This committee will naturally consider ahead what schemes were meant for the coming year—just as other budgets are prepared. They will submit their scheme to Government and Government will grant money according to circumstances.

*Q.* Do you want this Industries Department to be under the Imperial Department, or should it be quite a separate department? Should it be under the control of the Imperial Department or independent of the Government of India?—*A.* Independent of the Government of India, but we have said how to co-ordinate the work.

*Q.* Suppose you want the Government to guarantee interest on a very big concern for a certain number of years, don't you think that this can only be done by the Imperial Government?—*A.* That entirely depends on how the whole organization is developed in our reforms.

*Q.* The Director must be the executive officer of the board so far as this work is concerned, just like the municipal commissioner who does the work of the corporation.—*A.* Yes.

*Q.* Has he any other work besides this?—*A.* He has got the Museum and what other things he has got to do.

*Q.* But not the starting of industries?—*A.* No.

*Sir F. H. Stewart.*—*Q.* What, in your opinion, should be the numbers of this board?—Would you have a larger body which would sit permanently, or would you have a very small body which may add other members for special purposes?—*A.* Six or eight members. It may meet once a month or once in two months.

*Q.* The only Board of Industries we have come across so far consisted of something over 20.—*A.* That is not a working body. That is too big.

*Q.* The smaller the better?—*A.* Yes. About six to eight.

*Q.* With power to add to their number for any particular purpose?—*A.* Yes.

### *Questions 63 to 76.*

*Mr. C. E. Low.*—*Q.* Why do you put mineralogy under the Research Institute when it is already being done by the Geological Survey ?—*A.* It ought to be in the Geological Survey.

### *Questions 80 and 81.*

*Mr. G. A. Thomas.*—*Q.* What do you mean by saying " The committee however fear that the utility of this college is greatly marred by its being under-financed ? " In what way is it under-financed ?—*A.* That is not my personal opinion. Building is the difficulty.

*Q.* That is going to be provided as soon as a site is found.

*To Mr. Mehta.* Is it your opinion that the college is under-financed ?—*Mr. Mehta.*—*A.* It is not my opinon but that of the Chamber.

### *Question 81 (a)*

*Mr. G. A. Thomas.*—*Q.* You propose to abolish octroi duties. You do not propose that octroi should be abolished altogether ?—*A.* No.

*Q.* If you take away from the municipality a large portion of its revenues obtained by octroi duty, how do you suggest their raising additional revenues ? If other forms of taxation what other forms ?—*A.* We have not considered that in detail. Octroi duty does not form a very large portion of the income.

*Q.* You propose that the municipality should maintain the roads to the factories in good state.

*Sir V. D. Thackersay.* *A.* It is a small matter.

*Q.* Why should the general tax payer be made to pay for private roads to factories ?—*A.* He should not.

*Q.* The roads are already maintained in good state ?—*A.* Sometimes yes, and sometimes no, if it is a side road. We have not made a special point of it.

### *Questions 82 to 88.*

*Sir F. H. Stewart.* *Q.* It is difficult to know how to deal with these points. Can you suggest how you could make the publications more available ?—*A.* In large cities they may be made more available. Some of the Calcutta publications are not available in Bombay.

*President* You can put your name as a regular subscriber.—*A.* When we want them we do get them. After all, it is not impossible to get them.

*Q.* If you want to subscribe to the volume of the Records of the Geological Survey, you have only to pay Rs. 2 and you get a 300-page volume freely illustrated and sent to you by post immediately. Would it not be desirable to publish every quarter a list of Government publications available or monographs ?

*President.* It is published in the Gazette. They ought to be in the Chamber, if the Chamber is a regular subscriber.

### *Question 89.*

*Hon'ble Sir R. N. Mookerjee.*—*Q.* If the system of hall marking be made compulsory it would involve a hardship to the poor people ?—*A.* That is the opinion of the Chamber. They thought it would be a hardship on the smaller people.

*Q.* Hall marking means that the thing is genuine.—*A.* There is no objection to getting the thing hall marked and selling it hall marked. But it should not be made compulsory that every article should be hall marked. If anybody wants to get the thing hall marked and sell it as hall marked and gets higher prices, he may do so.

*Q.* It is not done elsewhere. Some people like to have their goods hall marked so that they might pass as goods of first class quality.—*A.* It should not be made compulsory.

*Q.* The system will be very good for those who want to get the article hall marked.—*A.* There is no objection to that.

### *Question 91.*

*Mr. G. A. Thomas.*—*Q.* Do you think that certificates of quality should be required for foods and drugs ?—*A.* You mean Government certificates ?

*Q.* What else could you have ?—*A.* If any food or drug is adulterated there should be penalties for it ; otherwise there will have to be a regular staff of Government for giving certificates. I say this from a practical point of view.

*Q.* Don't you think that certificates of quality would be possible in the case of exported articles—hides, cotton for instance.—*A.* If Government undertake to certify the quality, the purchaser will prefer it. Government work is so great that it would be practically impossible to do this thing. The adulteration of food and drugs is a very important question. Take for instance, ghee. Fat is put into it and it is called ghee.

### *Question 96.*

*President.*—*Q.* Have you consulted all the other members of the Committee whether there will be any difficulty in the registration of partnerships ?—*A.* There is a difference of opinion. Some hold that registration is impracticable, while others think that it is not.

*Q.* May we take this as the opinion of the majority ?—*A.* The majority present on that date was of that opinion.—*Mr. Warden. A.* I may say there are practical difficulties as trade is now being carried on, in not having partnerships registered. I know that some of our members said that it would interfere with the Hindu law of joint ownership. But that is not the point. If members of a joint family want to trade as partners you may set aside a certain portion as capital out of the joint property and trade with it. But so far as trade is now concerned, business is carried on in the names of sons who are in the college, and I know that in certain cases business is carried on in the names of families. With firms it is very difficult to know the names of the partners, and in case of litigation when you have to file suits against parties you have to declare the partnership and you cannot give the names of the members constituting the partnership. It is very desirable in the interests of trade to have registration of partnerships.

### *Question 98.*

*Q.* Apart from the question of railway freights, classification of goods, the apportionment of risk and the regulation of rates, have you experienced any other difficulty in the transport of goods ? Has there been delay in getting goods ?

*Sir V. D. Thackersay. A.* In the ordinary transport ?

*Q.* Yes.—*A.* There is no special difficulty always. There are always delays in lines. I know that cotton could not be brought from the Madras Presidency in three months and we had to store it in Madras for two or two and a half months.

*Q.* Have you experienced that foreign goods are carried at less freight than certain Indian goods ?—*A.* I do not put it in that way, they do not make a distinction that way. There is the difficulty of waggons. If you bring cotton from Southern India, if you bring it direct, it comes quicker, there is less mileage and there is no difficulty of transport. They charge higher rate. There is a longer route through Madras. It will be sent from Coimbatore to Madras, it will have to be carted there, there is longer mileage, but that is cheaper. It is cheaper to take it to Madras, cart it from and to the station, spend money on godown hire and waste time. It takes a longer time for the railways to bring it, and many more waggons but it is cheaper than coming direct to Bombay. From Coimbatore to Bombay, the direct route is very dear, but by bringing it *viâ* Madras it is cheaper. This is because there are through rates between the various ports, and we take advantage of the port rates to Bombay from Madras.

*Q.* If you bring cotton from Coimbatore direct you have to pay a higher rate ?—*A.* Yes.

*Q.* If you send that to Madras and then to Bombay it is cheaper ?—*A.* Yes.

*Q.* But it means more time ?—*A.* Yes.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* Suppose you have a factory in Ahmedabad sending goods from there to Delhi, the freight from Ahmedabad to Delhi is higher than from Bombay to Delhi ?—*A.* Proportionally much higher. You know what they call waggon load and long lead. They evidently put everybody on the same basis. They say that it is the same for everybody, but in practice it gives advantage to foreign countries because it is only goods that come to Bombay that can give waggon loads and long lead and the factory in Ahmedabad cannot do that and it has to pay a higher rate. If the railways are worked in the interests of industries, they must give the same rate to Indian factories for smaller loads as they give to foreigners for waggon loads. Otherwise they suffer a great deal in competition.

*Q.* By this arrangement the Indian industries are greatly hampered in their progress ?—*A.* Very greatly.

*Q.* And they will not prosper unless this difficulty is got over ?—*A.* Very greatly hampered. It gives an advantage to foreign countries. There is also another thing. There is what is called block rate. I moved a resolution in the Imperial Council on the 1st March 1912, and in my speech I pointed out the anomalies,* I shall send a copy of my speech to the Commission. It may be that since then some of them may have been removed.

*Q.* Is it possible to bring it up to date and give us instances where there are anomalies still ?—*A.* Yes.

*Q.* The Chambers have sent a representation to Government ?—*A.* Yes.

---

* Witness subsequently regretted that no spare copy of his speech was available, but referred the Commission to pp. 338-344, 347, 355-358 of the printed proceedings of the Imperial Legislative Council dated 1st March 1912.

*Q.* And to the Railway Conference ?—*A.* Yes.

*Q.* Can you send a copy of it to the Commission ?—*A.* Yes. There is one more point on which I should like the Commission to give its opinion, that is, where railway companies try to kill sea trade. When steamers were running to Broach port, the B. B. and C. I. Railway brought down the rates but when the steamers ceased it again increased the rates. When the matter is brought to the notice of the Government they say that they cannot interfere.

*Hon'ble Sir R. N. Mookerjee.*—*Q.* Can you give practical instances where they reduced the rates ?—*A.* In the speech I gave all in detail.

*Q.* Do you know about the southern ports ?—*A.* I have not studied that. The same anomaly prevails on the south side.

*President.*—If you send these cases they will be examined by the Railway Board before the Commission assembles at Delhi.

### *Question 101.*

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* Do you want the Government to help new companies with subsidies if they start the shipbuilding industry ?—*A.* I think they ought to.

*Mr. C. E. Low.*—*Q.* It was pointed out by one of the witnesses that shipbuilding would be a peculiarly appropriate instance for Government help by loan because the assets of the shipbuilding company would be liquid in the form of ships built. Do you agree with that ?—*A.* I think they ought to be helped in every way possible. The industry ought to be started. It has not only become a necessity owing to war time, but we have to meet the competition with Japan.

*Mr. Warden.*—Already our Port Trust have given facilities for putting shipbuilding yards on the eastern side of the harbour. Messrs. Richardson and Cruddas and one firm from Calcutta have opened shipbuilding yards and they have commenced building tugs for the coasting trade in Bombay.

*Q.* When ?—*A.* About four months ago. There are some now on the eastern side of the harbour, small craft, but still it would be desirable to encourage shipbuilding in this line.

*President.* *Q.* They are going to build. They will have shipbuilding started before the New Year. *A.* I am very glad to hear that.

*Mr. Mehta.*—*Q.* May I point out how this railway policy of low rates to seaports interferes with shipping rates ?

*Hon'ble Sir R. N. Mookerjee.*—*Q.* Do you want that there should be preferential treatment between Indians and Europeans ?

*Mr. Mehta.*—*A.* The steam line is controlled by Japan, and it was financed by Japanese Government in its early stages and they knew that it was to their own interests to run the line and help the Japanese industry. From Bombay they take cotton to Japan at a cheaper rate than they take to Shanghai because they have got an arrangement by which they cater for their own country.

*Q.* Does any English line go there ?—*A.* They have no special interest for developing the industries of India.

*Q.* You think that the Government of India should subsidize these Indian companies for the benefit of Indian industries ?—*A.* Yes, in the early stages. It would not be permanently, but to give them a helping hand.

### *Question 102 (a).*

*Mr. Mehta.*—Although it is not a monopoly, it is practically a monopoly, and Bombay people have to lose. The Hydro-Electric Company can supply electricity at half an anna, but licence is not given to that company. The Tramway Co. charge 1½ annas and the ordinary companies have to pay 1½ annas. By this industries suffer. It is a question of Government policy. I am only saying that in the interests of industries the small factories ought to get electricity very cheap.

### *Question 105.*

*President.*—*Q.* How would the starting of new industries reduce the area of forests ? *Mr. Mehta.*—*A.* That means that a certain portion of the forest will be taken by these industries at favourable rates.

*Mr. C. E. Low.*—*Q.* You do not mean that the industry will be allowed to cut down large areas of forest without providing for a proper renewal of trees for natural growth ?—*A.* No.

*President.*—The Forest Department do not object to the starting of industries if they are going to get money out of it according to the first part of your statement. It has been suggested by certain forest officers that certain portions of forest may be wiped out and the timber used for industries, and they may be replanted by another timber of a better kind.

### *Question 110.*

*Mr. C. E. Low.*—*Q.* You propose that facilities should be given for the acquisition of land for industrial purposes in connection with sugar industry. That would involve, of course, the expropriation of a number of ryots. What do you mean ? Something like 4,000 to 6,000 acres ?—*A.* Yes.

*Q.* That is a minimum figure for a three-year rotation ?—*A.* Yes.

*Q.* In how many places do you propose to do that ?—*A.* At least in one place.

*Mr. Mehta.*—Wholesale expropriation is not advisable.

*Q.* Do you think it is worth while turning out a very large number of ryots in order to grow sugarcane when you have got large areas in Burma and Assam which are lying waste not cultivated by anybody, and presumably can be used.—*A.* There is that difficulty. Could not some scheme be worked out by which the landholder can get some benefit for a smaller plot than the land that he has to give up.

*Q.* You will expropriate him entirely ? You do not propose to treat him like the indigo ryots under the *tinkattia* system ? One would not mind seeing a few people suffer for the public good, if it will lead to any improvement. I do not see how it can lead to anything more than one single factory on this side of India ?—*A.* Sugarcane could be grown if that area of land is used for sugarcane cultivation, but the owners would, of course, oppose it.

### *Question 110 (2).*

*Mr. G. A. Thomas.*—*Q.* What concessions are you referring to in the manufacture of paper pulp that you say have been given to South Kanara and Burma ? What concessions have you in mind in South Kanara. *Sir V. D. Thackersay.*—*A.* I understood that concessions have been given to Messrs. Turner Morrison.

*Q.* I think not. South Kanara refers to the Madras Presidency.—*A.* It should be Kanara.

*Q.* No concession has yet been granted.—*A.* Perhaps our information was wrong.

## APPENDIX.

In 1917 there was a Banking Office to every 5,000 persons on an average in the United Kingdom.

*Standard of comparison* 1858=100.

| | No. | | | No. | |
|---|---|---|---|---|---|
| 1858 | 2008 | .. | 1910 | 8279 | 412 |
| 1866 | 2588 | 130 | 1911 | 8497 | 424 |
| 1872 | 2924 | 145 | 1912 | 8809 | 440 |
| 1878 | 3554 | 178 | 1913 | 9116 | 456 |
| 1886 | 4460 | 223 | 1914 | 9316 | 465 |
| 1896 | 5627 | 281 | 1915 | 9430 | 472 |
| 1906 | 7507 | 375 | 1916 | 9367 | 468 |

On 31st December 1913 the German capital of 6 large banks, including reserves, was as follows :

74·50 million £.

Deposits 244 million £

This is about 1 million of capital to less than 3½ of deposits the English banks showed, including reserves :—

Capital 39 million £.

Deposits 457 million £.

This is about 1 million £ capital to 11½ of deposits.

Moreover the German Bank is a combination of all the services to trade, which in England are separately rendered by banks, investors, stockbrokers and bondholders. Certain critics while holding up for admiration, the free lending methods of German banks, never mention the terms usually exacted. For a loan of any magnitude the borrower must in effect firmly bind himself and his belongings to the bank whose close supervision of frequent interference in his daily business life must be looked upon as a matter of course.

Most German banks of any size have Specialists on their Staffs whose business is to act as "Bank Directors" of the concerns which the banks are financing. Just as Companies in England reinsure portions of the large risks, so the German banks spread the risk of large advances by Syndicates. The usual security is a mortgage by bonds which the Bank to spread its risk will probably share with other banks with whom it is syndicated or with private capitalists.

Not the least efficient of the pillars of German commerce is its wonderful system of trade inquiry and espionage. Banks and commercial syndicates spared neither money nor labour to secure a full and complete report on coveted trade areas. Consuls, travellers and inquiry agents form a commercial trinity which for patient investigation and practical result is nowhere matched. Embassies and consulates exert themselves to help German trade throughout the world, no opening is too small for notice and no district too remote for report.

Dr. Reissir is the great German authority on the subject. In his book he remarks as follows :-

> "Above all they must promote all the economic interests of the nation, *viz.*, the interests of all producing classes without distinction in so far as the services and the credit required by them come within the sphere of banking activity and do not conflict with the necessary premisses of sound banking policy. In the next place they have to keep the amount of credit to be granted within reasonable bounds and to offer as far as within their power the utmost opposition to an unsound demand for credit. The banks must therefore endeavour to obtain at all times a comprehensive and accurate insight into the general conditions of the branches of industry and trade chiefly dependent on them for support in order to be able to discriminate between necessary requirements and false hankerings after expansion and aggrandisement. They should also be able to intervene, or at least restrain and check, in cases where the form and extent of credit received cause the fear of unsound development."

Sir R. Pilgram says that the German banks have one great advantage when undertaking to assist the vast development of economic activity which has come on of recent years in Germany, in the fact that the same class of business though on a much smaller scale had been carried on by the existing banks and their predecessors for many years. During the time and up to the end of 1870 when the present system of coinage on a gold basis was adopted there were no less than 7 different descriptions of coinage in the different States of Germany. These, with the exception of Bremen, were all based on the silver standard. They were small institutions. The deposits they had belonging to other people were very small.

It was not until 1871-72 that the German banking system commenced its present development. The 8 big banks in Berlin in 1908 were as follows : (Later figures are not available.)

| | | Million £. |
|---|---|---|
| 1. | Bank Fur Und Industrie (the Dermstadter Bank) and its group of associated banks : | |
| | Capital and Reserve | 9·213 |
| | Capital of the 5 banks grouped with it | 5·659 |
| | | 11·872 |
| 2. | Berliner Handelogellschaft | 7·225 |
| 3. | Commerz Und Disconte Bank of Hamburgh | 5·858 |
| 4. | Deutsche Bank and its group | 39·342 |
| 5. | Disconte Gisellschaft Bank | 28·238 |
| 6. | Dresden Bank | 14·197 |
| 7. | Instimal Bank Fur Deutschland in Berlin | 9·111 |
| 8. | Schaffhausencher Bank Vercn | 13·926 |

These 8 banks have in all more than 600 representatives on the governing bodies of different companies including 3 connected with the Imperial Bank of Germany. The companies themselves are fewer in number than the representatives on the supervisory board of the same company. On the other hand, representatives of large industrial interests have joined in increasing numbers the supervisory boards of the large banks. In this way concentration both in banking and industry has been assisted.

See also Bankers' Magazine for October 1917.

## WITNESS No. 303.

### MR. L. NAPIER, *Conservator of Forests, Central Circle, Poona.*

### WRITTEN EVIDENCE.

### *Financial Aid to Industrial Enterprises.*

The only experience I have of Government aid to an industrial enterprise is a case in which a contractor wished to erect hydraulic grass presses, partly for the supply of famine fodder to Government when required, partly for his own trade. Not having the capital required for the purchase of the presses, a loan with interest was made to him by Government, the capital to be repaid within a definite period of years. Possibly this case may not be held to come strictly within the term industrial enterprise, but in any case it has enabled the contractor, while rendering most valuable service to Government in the provision of famine fodder, to develop a trade in grass in a locality where, without the machinery which the loan enabled him to buy, little could otherwise have been done. The enterprise has been in every way a success, both from the point of view of Government and of the contractor, and has at the same time put money into the hands of the surrounding population.

### *Technical Aid to Industries.*

**Surveys for industrial purposes**

So far as the forests are concerned the existing knowledge of the available resources of the country is incomplete. The forests must contain many timbers and other products of potential value, but of which sufficient is not known for them to be put upon the market. I would not say that a general survey should be organized to investigate matters, but rather that there is urgent need in every province for research officers whose work will supplement that of the officers, viz., the Forest Economist, the Forest Chemist at the Forest Research Institute and College at Dehra Dun. Such research officers would keep in touch with trades that utilize forest products, would investigate the commercial possibilities of likely timbers or other material, would collect data as to the extent to which such material might be available in various localities, would in fact be the medium through which both Government and trade would obtain a knowledge regarding the wares which the former could supply and the latter could utilize. The scope in this direction may be said to be practically unlimited for science must ever be revealing possibilities hitherto undreamt of. Research officers, as now done at Dehra Dun, would publish the results of their work in official bulletins available both to Government officers and to the public; trade journals would doubtless take notice of the same, and knowledge useful to all parties would thus be steadily diffused.

### *Other forms of Government Aid.*

**Supply of raw materials.**

While having no practical experience with the point raised in this question, I would give my opinion that for the development of a new industry, it is but reasonable that Government should be prepared to supply raw products at favourable rates, in the case of an experimental and unproved industry until such time as a definite knowledge of the commercial possibilities of the scheme can be ascertained, in the case of a proved industry until such time as initial difficulties can be overcome and the industry can stand by itself. On the one hand it would seem bad policy to crush a perhaps promising industry for want of encouragement and facilities, and it cannot be denied that the starting of a forest industry might well present difficulties which would deter people from embarking on them unaided, with a more than possible loss of capital in view; on the other hand every industry should be expected to stand on its own legs as soon as reasonably may be, for if it cannot do so there is no real profit in it either from the point of view of Government or of the industrial development of the country.

### *Other forms of Government Action and Organization.*

**Forest Department**

Regarding the policy and working of the Forest Department I have no criticisms to make; the department cuts its coat according to its cloth, and its policy is largely regulated by facilities at its disposal. With the addition of research officers already referred to and with improved communications, there would naturally follow more intensive and economical working of the forests, enabling products which now lie fallow to be placed upon markets. This connotes increased establishment and the formation of special branches within the department, for no one man in these days, and still less in days to come, can be forester, administrator, engineer, research officer and commercial traveller all in one. With improved communications there will come more intensive working, for which a larger use than is now the case, of saw-mills and mechanical appliances in general, will be required; a reduction in the cost of assembling raw products will naturally result.

In Western India the possibility of concentrating special kinds of trees in limited areas is very small, for pure forests of one species are not found as in the north, nor with but two exceptions that I can think of, and where pure woods, for fuel only, are grown, does nature permit of their being so formed to more than a limited extent. So far as possible all that the Forest Department can do in most of its areas is to try and increase the proportion of its more valuable species at the expense of the less valuable.

Forest transport available in the areas under my jurisdiction is generally less than the demand, the method of transport being by bullock cart hired by forest contractors from the neighbourhood of the areas under working. The method of transport is suitable to the quality of the material yielded by the forests, the latter being neither concentrated in area nor yielding any but material of small size. Mechanical transport therefore is hardly required, and the remedy for the deficiency in carts would rather seem to lie in the extension of forest roads and the economy in labour that would result therefrom. As a notable instance of the hindrance to forest development caused by lack of communications, I might quote the Tapti River, lying between the Tapti Valley Railway and the forests of the Satpuda Hills in Khandesh, and unbridged and with most difficult crossings throughout, and thus preventing the export of forest material to the southern parts of Khandesh where it would otherwise find a ready market. And another point that might be noticed is the deficiency in rolling stock that hinders so greatly at certain seasons of the year the free and rapid removal of forest material by rail.

(*Mr. Napier did not give oral evidence.*)

## WITNESS No. 304.

### MR. T. S. DAWSON, *Principal of the Victoria Jubilee Technical Institute, Bombay.*

### WRITTEN EVIDENCE.

### *Training of Labour and Supervision.*

Primary education.

In my opinion it is extremely doubtful whether the lack of primary education, as at present constituted, has hindered industrial development, and it seems probable that for the majority of people education has not been based on their immediate needs but on what may be wanted some years hence. The idea seems to be deeply rooted that education is given to enable the recipients to avoid doing any manual work, and there appears to be little or no attempt to eradicate this idea in the primary schools, where erudition rather than industrial efficiency is apparently the idea of the teacher. The history of other countries teaches one that they were far far ahead of the India of to-day, before any literary education was added to industrial work. I have during the course of examination and inspection of many industrial schools in various parts of India where the literary and industrial education is carried on side by side, found that the great majority of students on being questioned, stated they did not intend to follow up practical work on leaving the school, but proposed to become clerks, postmen, peons, ticket collectors, and loading clerks, on railways, etc., and gave as their reason for joining an industrial school, that they were given a scholarship and the education was better than in an ordinary school. Education in the primary schools does not appear to direct a youngster's mind in the direction of industrial work, and I believe that if industrial development is to be secured that primary education is wrong in principle. It aims at giving a literary education with the smallest amount of manual training as an adjunct, instead of making manual training the primary object and considering the literary side as of less importance. It is for this reason that I consider lack of primary education in the masses does not hinder industrial progress. Create an industrial atmosphere from the earliest period of a child's education and industrial development will come as a natural sequence.

Training of workmen

I have no experience in this country of any industry in which any serious attempt has been made to improve the efficiency of the workman or labourer directly. Indirectly much has been done in technical institutes and engineering colleges to train up men in improved and up-to-date methods of efficiency, with the idea that such men shall in turn impart their knowledge to others and instruct workmen how to improve the character of their work, but many men do not take kindly to teaching others and seem to think that they are training up another man "to do them out of their own job." I have had this idea expressed to me many times, and until educated students realize that they never learn more than when teaching others, much improvement need not be looked for from this source. The actual training of the workmen must come from the foreman and from association with other and better workmen. The employers can also assist very materially in improving things in this direction, by introducing a system of giving a bonus to a man who turned out more and better work than his neighbour, and thus provide an inducement for a man to try and improve himself.

As an instance by the introduction of a bonus system in one of the railway workshops on ammunition work, the production increased in some cases over 100 per cent.

The opportunity for training apprentices is, in this country, not as extensive as would appear. Outside the railway workshops there is little or no attempt made at any systematic training except as the result of private endeavour, as for instance the apprenticeship scheme of Messrs. Tata Sons and Co., and unless other employers of labour are prepared to assist on similar lines I do not see how much can be done.

Outside these examples my own experience of the training of apprentices in this country is not a satisfactory one. There is in this country as well as in others great difficulty in obtaining a good training during apprenticeship. Nearly every workshop or factory specializes to some extent, and the ordinary apprentice is put into one department or other, there to gain experience as best he can (how nobody cares), and in that department he remains unless he is a youngster of considerably more enterprise than is shown by the majority. There are few places and opportunities for apprenticeship and those only outside the examples previously referred to are in factories where the work is mostly of a rough and ready character.

The majority of what are generally called industrial schools are really schools for manual training or are merely preparatory technical schools where instruction is given in drawing, carpentry and in (some cases) smithy and turning. The control of these institutions and of the few industrial schools that exist in the Presidency has recently been made over to the Committee of Direction for Technical Education.

Excepting missionary efforts for orphans, industrial schools on the whole have not proved successful. They seldom can recruit from the right classes and are generally inefficient. The training is not sufficiently practical and the hours of work to which the student has been accustomed at school, unfit him for the much longer hours to which he has to conform in after life. Industrial schools as they exist in this country are indigenous. They have been condemned in principle and practice again and again.

The only advantages apparent are that a number of raw youths are enabled to exchange for the position of possible peons—hamals, etc., that of unskilled and indifferent workmen.

Co-ordination of practice and theory.

I am inclined to generally support the view that the most promising method of training skilled workmen is to establish manual training schools for children in big centres and near big workshops; the boys to be apprenticed in workshops from the age of 14 to 15; during the apprenticeship they are to be obliged to attend afternoon classes to complete their literary education and finally to obtain some theoretical knowledge of the work.

The apprenticeship system lacks "theory," the school system falls short in "practice." The apprentice should be obliged to attend classes for theory just as the school trained students are compelled to serve as apprentices.

The apprenticeship system overlooks preparatory training in reading, writing, and arithmetic which the school system enjoins. This discrepancy between the two systems needs adjustment. This can be possible only by bringing into closer and more practical touch the school authorities and the managements of factories and workshops.

Night schools.

I am of opinion that after a long day's work in the Indian climate the student is physically incapable of doing any serious work in a night school or class.

The experience of schools for half-timers in mills points to the unsuccessful character of such institutions.

Control of education.

The immediate control should rest with a Provincial Committee on which should be represented:—

The Department of Education.

The technical and industrial schools and colleges.

The industries concerned.

Such a representative Committee has been recently established for the Bombay Presidency. The functions assigned to the Committee by Government are—

I. To regulate the courses and standards of instruction at the several schools and classes under its control with due regard to the individual circumstances of each institution.

II. To arrange for the periodical inspection and examination of such schools and classes as regards their staff, accommodation, equipment, courses and methods of work and the actual work done.

III. To recommend to Government grants-in-aid to such schools and classes.

IV. To arrange for the translation into the vernacular of text books on technical subjects.

V. To determine the conditions under which new schools and classes should be established by the aid of Government.

If large extensions of technical and industrial education take place and a Department of Industries is established, the head of the new department may be appointed to serve on the Committee which as now should be under the financial control of the Department of Education.

Training visors an

For training supervisors or as they are generally termed foremen there appear to be two courses open, one for selected men from works to be sent to a properly equipped technical school and there learn the scientific principles of their trade. The other is to take smart specially selected technically-trained students, and place them in a factory where they would be given control of small sections of men and work, until such time as they have acquired a commercial knowledge of such work, the value of time and discipline. I am of the opinion that the latter method is likely to prove the better one in India, as the ordinary workman, smart though he may be in his craft, would scarcely have had sufficient general education to enable him to acquire the science allied to such craft with any rapidity, and the probability is he would give up in disgust at finding better educated youngsters far ahead of him.

I do not see how it is possible to train managers, men who to be successful must have been through the mill from the bottom, possess considerable commercial ability, and the power to select and control large bodies of men and personally dominate the whole factory or works by their character.

> "In England a direct investigation was made in a well-known manufacturing town, from which it appeared that 60 per cent. of the heads of private manufacturing businesses owed their position to their own private efforts and they had begun life in the lower economic ranks. In a cotton spinning district it was found that 15 per cent. of the managing directors, 42 per cent. of the mill managers and 67 per cent. of the assistant managers come from the working class families with incomes about the same as those earned by the operative classes."

I think that private firms should themselves give assistance to supervisors, managers, etc., to study methods of manufacture in other countries if found necessary as they (the firms) will ultimately benefit.

Mechanical engineers.

There is an undoubted lack of uniformity in the standard of examination for mechanical engineers under the Boiler Act and the manner in awarding certificates leaves much to be desired. Men to my own knowledge have repeatedly failed in Bombay, have gone to other centres passed without difficulty and come back to Bombay to exchange their certificates. A great deal of dissatisfaction exists both with regard to the way in which the examinations are conducted and certificates granted, and I doubt if this dissatisfaction will cease or better and more equal tests in the various provinces be obtained, until an independent whole-time examiner be appointed by Government for each presidency or province in which the Act is in force. These examiners should consult as to the standard of examination and qualifications of candidates, and adopt a common basis so that the exchange of certificates would offer no difficulty.

### *General Administration and Organization.*

Official organization.

For the development of new industries and a means of affording assistance to already existing ones it appears to me that a Director of Industries associated with a Board of Industrial experts and advisors would be the best organization to meet all requirements. The Director, who would be as it were the administrator, need not of necessity be a technical man, but should be one of good commercial ability. His business would be to keep in touch with the industrial needs of his province, to find out what difficulties are encountered both with regard to manufacturing processes and the marketing of products, and proposals for the starting of new industries.

The advisory board should be a carefully selected body of men of technical training, practical experience and knowledge of the industrial conditions both as regards labour and material.

This advisory board would act though the Director of Industries as consulting experts, who would give their opinion on any matter submitted ; in a way it would act as the consulting engineer does in other countries. Funds would be needed to carry out such a scheme as it would be hardly fair to expect non-official men whose opinion was really worth having to give that opinion for nothing.

### *Organization of Technical and Scientific Departments.*

ictoria Jubilee echnical Institute.

The Central Technological Institute in Bombay or the Victoria Jubilee Technical Institute is capable of giving considerable assistance to industries and has directly and indirectly been doing so for many years. Established in 1887 with a department of Mechanical Engineering and a Textile Manufacture section it has now developed into what is generally acknowledged as the first and best equipped institution of its kind in India.

In addition to the two sections mentioned it has now an Electrical Engineering section and Applied Chemistry section and a Plumbing and Sanitary Engineering section. The laboratory of the Institute is fitted up with sufficient apparatus of an up-to-date character for all sorts of testing, both physical and chemical, and its equipment is being continually added to. This work is of the kind which students after leaving the school will be called upon to perform when employed in factories and the offices of certain merchants. It is especially practical, and of the kind most needed by employers. No exclusive right to this class of work is sought by the Board of the Institute ; the authority conferred by the title of Test House and the confidence the commercial community is likely to feel in a laboratory well fitted and in continuous practice should suffice for the purposes of this proposal.

The heads of the departments are all men of considerable experience in the actual industrial side of their work and are frequently called upon for advice and help in many ways.

For some years past it has carried out a considerable amount of analytical and testing work and I would suggest that its sphere of usefulness might be considerably increased if it were recognized officially as a test house for the properties of all materials, raw and manufactured.

Efficiently to carry out work of this character some addition to staff and equipment would be needed, and I have estimated that for the Institute to be in a position to carry out work to the extent of the Test House in Manchester a sum of money should be placed at the disposal of the Board of the Institute to enable the additions necessary to be made.

*Mechanical Engineering Section.*—It is proposed to install machines for physical tests of materials which estimated at cost before the war would amount to Rs. 8,500. No addition to the staff is needed in this section.

*Electrical Engineering Section.*—This department already carries out work in calibrating, testing and adjusting electrical instruments, but to provide for the extension of work which would probably occur if this scheme is adopted some of the apparatus would require duplicating and this duplication is estimated to cost Rs. 3,000. No addition to the present staff is needed.

*Textile Manufacture Section.*—In this section testing work done at present includes strength of yarn, counts of yarn, strength of cloth, weaving capacity, analysis of cloth, testing of yarn and cloth for size percentage and foreign matter. The testing apparatus is new and complete and require no present addition but a sum of Rs. 2,000 is required for fitting up a laboratory, room for which has been reserved in our new building scheme. No addition to staff is needed in this section.

*Chemistry Section.*—In this section the work undertaken up to the present has included oil, starch, tallows, sizing materials, dye stuffs, salts, and many tests of raw and manufactured materials except food and drugs. As one of our Applied Chemistry subjects now included is the Analysis of Foods and Drugs, the testing of these materials would also be undertaken and a sum of Rs. 3,000 would be required for additions to the present equipment. It may be safely assumed that a considerable amount of work would follow the establishment of the scheme suggested, and the present staff would be unable to meet the increase of work without detriment to their educational duties, and the appointment of a laboratory assistant on a salary of say Rs. 300 rising to Rs. 450 would ultimately be necessary.

(*Mr. Dawson did not give oral evidence.*)

## WITNESS NO. 305.

### SIR STANLEY REED, *Editor, the "Times of India," Bombay.*

Sir Stanley Reed.

### WRITTEN EVIDENCE.

Industrial and trade journals.

*Q.* 84. With regard to the *Indian Trade Journal* I wish to state that this journal gives crop forecasts, trade returns, etc., in a handy form. A great part of its contents consists of reprints of information with which newspaper readers are already acquainted, and of paragraphs on trade questions that could not conceivably interest many, if any, of those who see it. Most commercial intelligence could be quite well issued through the Press, if it is intelligently prepared in a readable form, *e.g.*, the recent note about improved methods of flaying animals at Bandra.

*Q.* 85. With regard to Q. 85 I do not think that Government should issue industrial or trade journals for general or for special industries. It is a convenience if all Government information relating to financial, commercial and economic subjects is issued periodically in blue book form on the lines of the *Board of Trade Journal*, without its advertisements. This information should be purely official or semi-official and should not contain any comments of any sort: the blue book in which it is embodied should be issued periodically, say once a month. Such industrial or trade journals as are needed in the country should be provided entirely by private enterprise which alone possesses the necessary freedom and should not be financed or even partly financed by Government. With the growing needs of the country such periodicals are certain to spring into existence.

Most of the monographs are of so scientific a character that they are of no use to any one but the trained chemist, entomologist, or other variety of scientist. The information they give might often be popularized, and in that case would obtain far wider publicity than at present. As a model of how the results of expert inquiry may be given to the public, I would quote the recent note on the possibilities of developing the pottery industry in Western India. If the Geological Department had issued that note it would have given an analysis of the various clays and of the experiments with them, and would have left the practical possibilities of the question alone: it would not as a result have stimulated the interest of capital.

### ORAL EVIDENCE. 19TH NOVEMBER 1917.

*President.*—*Q.* You have confined your answers just to two of our questions dealing with the system of publication only. First, in answer to question 84, you give an instance of the way in which press communiqués could be issued through the ordinary press as well as through the *Indian Trade Journal.*—*A.* Yes.

*Q.* As in the case of the flaying of hides at Bandra?—*A.* Well, I simply mentioned that as one characteristic case. It seems to me that if Government want publicity they can get an enormous amount of publicity through a well written press note which can be digested in a comparatively short time, and I took that instance to show how it could be done. Also, they recently published a valuable note on the pottery industry. If such notes are published through the daily press, there will be thousands of readers, and it seems to me that there is no method so effective in securing wide publicity as a short well-written press note.

*Q.* In this particular case the communiqué was issued to all papers?—*A.* I think so.

*Q.* So that the *Indian Trade Journal* did no more than repeat that communiqué just in the same way as other papers did?—*A.* Yes.

*Q.* You don't mean to suggest here that it was published only from the *Indian Trade Journal*?—*A.* No, I was holding that up as an example of economical publicity.

*Q.* But your note might lead one to the impression that you want to discontinue the *Indian Trade Journal* ?—*A.* No, the *Indian Trade Journal* has a distinct value.

*Q.* So long as the *Indian Trade Journal* exists you agree that it is advisable that it should also publish these official press communiqués ?—*A.* Certainly, they are of great value if presented in a compact form capable of being bound and kept on record.

*Q.* Would you like the *Indian Trade Journal* to be continued ?—*A.* Well, that is a matter for Government of course to decide. The public knows nothing about the cost of the *Trade Journal* or whether it is the best and most economical means of providing that periodical record which I think is desirable.

*Q.* I notice you have referred in your note to this interesting memoir on the pottery industry in Western India. I believe it was prepared in consultation with the Geological Department. If it is to be issued in a form which you regard as suitable, could you give us an illustration of the manner in which the Geological Department could mend its ways ? Could you give us an illustration of a memoir they have issued in a form that is unsuitable to public consumption ?—*A.* I read the publications of the Geological Department fairly closely. There is nothing in them which is calculated to arrest the attention of the ordinary commercial man. The memoirs of the Geological Department and to a considerable extent the Forest Department and the Agricultural Department at Pusa are written by experts for experts ; you will find some of the records from Pusa deal with the most recondite subjects in a most recondite manner *. That is not the sort of thing that the ordinary businessman is on the look out for. I think they may be perfectly good for the Geological Department. I do not dispute that ; but if they are to arrest the attention of the businessman, they must be in a form which will arrest his attention at the moment and deal with the commercial aspects of the problems rather than the strict scientific aspects.

*Q.* Is that not a matter for private enterprise ? There are many good journals in India ?—*A.* The ordinary businessman has not got the time to dive into scientific treatises unless they are put in popular form, and the result is that the number of newspapers which really seriously attempt to deal with official literature is I think comparatively small.

*Q.* You understand of course that there is a danger in publishing information on a commercial subject involving also technical and financial operations in a form so popular that there might be an incautious rush for things, and consequently more harm will be done than good ?—*A.* Well, there are risks in everything, and I think that that is a risk that we might well afford to take.

*Q.* For instance, you might have heard a good deal about the amount of money that had been lost in the glass industry in India ; factories were started and money lost in various parts of the country ; would you not be prepared to admit that that is mainly due to the fact that the technical operations of the glass industry are understood by only a microscopic fraction of the population in this country ; that if the glass industry is to be successful, it must be in the hands of experts, and not in the hands of all sorts of people ? Is that not possibly due to the publication of popular articles in such a way that the various operations and processes are not sufficiently stated ?—*A.* That is why I should like to see the scientific view put in popular form, when that error could not possibly arise.

*Q.* One of our witnesses has, I think, stated in his advance note that a great deal of money has been lost in the glass industry ; as far as one can gather from his advance note, it was due to the fact that in 1903 when he arrived in Bombay the *Times of India* asked for an interview, and on the 22nd October of that year published the same interview at great length, arousing at once an enthusiasm all over India for this industry, and that everyone who had some knowledge of the subject rushed into the field. Don't you think that such hasty publications would do more than good ?—*A.* I cannot imagine official publications being hasty. I am assuming that they will be scientific and authoritative, although perhaps not couched in scientific language.

*Q.* What you are trying to suggest is that there is probably a middle course ? I suppose that you will agree that popular statements of the kind should not be published without the other side being duly balanced ?—*A.* Yes, I think so.

*Q.* So your complaint is that most of the official publications are too dry and uninteresting for the use of the public ? You cannot remember any particular instance of geological publications of the kind ?—*A.* I cannot say now specifically, I have not refreshed my memory on that point.

---

* Examples from two recent issues :—

Dentition of the Tragulid Genus (Dorcabune). By Guy E. Pilgrim, D.Sc., F.G.S., Assistant Superintendent, Geological Survey of India. (With Plates 21 to 23.)

On Hematite Crystals of Corundiform Habit from Kajlidongri, Central India. By L. Leigh Fermor, D.Sc., A.R.S.M., F.G.S., Superintendent, Geological Survey of India. (With plate 24.)

Preliminary Note on some recent Mammal Collections from the Basal Beds of the Siwaliks. By Lieut. G. E Pilgrim, D.Sc., I.A.R.O., Assistant Superintendent, Geological Survey of India.

*President.*—I am asking you this question because looking 8 or 10 years back my main difficulty was to restrain the public enthusiasm; there was not a single copy left of the Records of the Geological Survey published during 6 or 7 years, they were absolutely out of print, and the result has been that a good deal of the activity of the Geological Survey was devoted towards restraining enthusiasm instead of stirring it up.

*Mr. C. E. Low.*—*Q.* You say that the *Indian Trade Journal* is a handy publication, for this kind of official record, and that if the information and statistics scattered therein are put in the form of memoirs, that will be more handy?—*A.* Yes, from my point of view. I find it of great value: whether it is worth the expense involved or whether the same purpose would not be served by a monthly publication is a point on which I cannot express an opinion. I have no information as to the cost involved.

*Q.* Perhaps if the *Trade Journal* were confined to this purely statistical information a little more might be put in?—*A.* I think you might. But if you look through the file of the *Trade Journal* I think it appears from the miscellaneous paragraphs introduced that the publisher finds the greatest difficulty in filling the requisite amount of space, and to use our own colloquialism it is padding.

*Q.* I want to ask you one question in regard to the publication of press notes on subjects of commercial and financial importance: is it not the fact that certain papers decline to publish unless they are paid for it?—*A.* I think that must be only a very inconsiderable proportion. I think the number of papers which will publish them free, particularly if they are reasonably short, is so very large that your purpose will be served.

*President.*—*Q.* I understand that you would be willing to give valuable evidence on the subject of industrial banks?—*A.* I think we had better leave that over for the time being.

*Q.* Would you like to give us any information on the question privately? In a case of this kind you cannot perhaps freely give evidence without quoting confidential facts which makes it very difficult to be free: if so, would you like to give it privately?—*A.* I have not come prepared to speak on it. On a later occasion I shall be glad to give my views.

*Q.* Would it be convenient to you to put in a note on that question?—*A.* I will try. I have to leave Bombay on Wednesday. I will try between now and then. (*Witness subsequently sent in a confidential memorandum.*)

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* If information is published in the form of bulletins, having got that information from all the local Directors and the Imperial Director, do you think that that will be more useful than the *Indian Trade Journal?*—*A.* I think so, provided Government will pick up the right man to write it up in the proper form. I mean to say that the presentation of facts is a distinct craft as much as their collection. There is any amount of ability in Government service for this purpose if Government is only careful to pick up the man who has the particular faculty to present it in readable form. For permanent record the bulletins should be published periodically at such intervals as Government may decide so that you have not got to go through an enormous number of detached paragraphs as at present in order to get information about a particular subject. But for really effective publication there is nothing to compare with a short press note.

*Q.* You don't think it advisable that trade journals issued as private enterprise should be subsidized or helped by Government? Do you think they will lose their independence?—*A.* I think they are bound to. A trade journal receiving assistance in any form is necessarily subject to interference and control and that is destructive of its value.

*Q.* You know that the major portion of the commercial community in India do not understand English, especially in Bombay and other parts of India: don't you think that if the same information is given in the vernaculars it will be more useful?—*A.* I would publish all commercial and industrial information in the leading commercial vernacular.

*Sir F. H. Stewart.*—*Q.* I do not quite understand what you suggest in this matter of publication. You indicate I think that there is a certain amount of superfluity about Government publications?—*A.* No, not quite so. My point is, you have got two classes of publications; you have got your official record for the officials and experts; but in this country if you want to interest the general public in any scheme or idea you cannot do it by confining your publicity to a highly scientific and technical journal. For that purpose the information should be given in the form of press notes written in language which can be understood by the ordinary newspaper reader. Of course monographs on industrial subjects serve a distinct function.

*Q.* There is just one further point which is a little outside the present inquiry but which bears on it in a way. It is with reference to the collection of commercial and industrial intelligence in the United Kingdom and abroad.—*A.* That is a technical subject and I do not care to hazard an opinion.

*Q.* It is rather an administrative matter. Would you agree that this system should be improved?—*A.* Of course, yes. It is very hard now to get all the facts even if one is more than usually conversant with official literature.

Sir Stanley Reed.

*President.*—*Q.* When you are sending us your note on industrial banks, could you find it also convenient to give us some idea as to your views about the relative functions of the Imperial and the Local Governments in the control of these industrial enterprises and the control of the staff necessary for the purpose?—*A.* I will try.

(*Witness subsequently sent in a confidential memorandum dealing with these matters.*)

Mr N. B. Wagle

## WITNESS NO. 306.

## MR. N. B. WAGLE, *Proprietor, Universal Agency Co., Bombay.*

### WRITTEN EVIDENCE.

### *Note on the Successful Introduction of the Glass Industry in India.*

The glass industry in India, by which I mean the several attempts made so far in different parts of the country, such as Umballa, Rajoora, Sodepur, Titaghpur, Madras, Gwalior, Jubbulpore, Godhra and Bombay, have not been successful. There are some factories working at the present time, but I do not think they will accomplish the object we have in view, namely, to establish the industry firmly in the country. Most of the factories mentioned above have been closed after suffering a great pecuniary loss, and the enterprise has got into bad odour amongst men of capital. The prospects of this industry are just now engulfed in doubt and indifference.

In spite of all this, I am fully convinced that this industry can be successfully established in this country and developed to such an extent as to meet its major portion of demand and also the demands of some of the neighbouring countries of Asia and Africa.

While I make the above statement, a responsibility is thrown upon me to account for the so many failures which have resulted in this field of enterprise. This responsibility I accept.

Before dwelling further on these failures, I must narrate a few facts antecedent to the several attempts in this field.

In the year 1903 I returned from England after working for over two years as a glass-blower, and 18 months as the manager of a small factory in the suburbs of London. My work in England related to the glass industry as it was carried on in England. I then visited the several glass works in France, Belgium, Germany and Italy to collect varied experience which I thought would be useful to me in adapting the industry to the Indian conditions. But when I returned, I must confess, I was comparatively a stranger to the conditions obtainable in India for the introduction of this industry in this country.

I arrived in Bombay in the first week of October in 1903. A few days afterwards the Editor of the *Times of India* asked me for an interview, and in the issue of the 22nd October 1903 he published the same at length, arousing at once an enthusiasm all over India for this industry, and everyone that had some knowledge of this subject rushed into the field.

One attempt was set on foot in Madras, another at Umballa, a third at Rajoora, and in fact there was a race to bring home the wealth which this industry contained, according to the imagination of these people.

I was invited by the Bengal Government to make a survey of the Bengal Province, and report upon the suitability of that province for the introduction of this industry in that part.

In the glass industry the most important thing is the fuel—the quality as well as the quantity. And naturally Bengal being a coal-yielding province, I eagerly accepted the offer and made a survey of the whole of the province.

I did not at once submit the report, because while I wanted to supply all the information needed for the purpose to the Bengal Government, I wanted to make the report as far as possible applicable to the whole of India. I submitted the report in 1905. I attach the copy* of the same herewith, which will place before the Commission all I have to say on the subject.

The chapter XII of this report deals with past failures and I have recorded what I considered were the causes which brought the several enterprises to grief. Since I submitted the report, two or three more concerns have been started, one at Jubbulpore, one at Godhra and one in a suburb of Bombay. I inspected the Jubbulpore works very recently for a syndicate who desired to take it up and revive the same. This factory has been working at a loss for a long time. Recently some Government orders were placed with this factory at an abnormal price, which gives them a good yield, but that is wholly absorbed in interest on the moneys borrowed, leaving a margin of loss. This implies that after the war is over, the factory is bound to work at a heavy loss again.

There was a concern started in Madras to make soda-water bottles, and after prolonged endeavours, the Government of Madras appointed a committee of expert commercial men to inquire into the result of the experiment and advise them whether the attempt should be continued. The report of this committee was submitted to the Government of Madras and extracts from the reports are published in the issue of July 1917 of the *Indian Trade Journal* (Vol. XLVI—No. 588).

---

* Not printed.

The sum total of that report is that the raw materials, which should go into the furnace, cost much more in Madras than in St. Helen's in England. The cost of coal is excessive. Labour is dearer when considered in proportion to the output of the factory, and therefore the committee advised the Government to discontinue the experiment. It deprecated the inception of any experiments in glass-making, except under expert guidance, and in view of the difficulty of obtaining experts at the present time the committee was unable to recommend that any experiments should be undertaken at present. This committee, however, recommends that the department of industries should make a survey of alkaline earths in the Madras Presidency and that the samples of these earths should be analysed with the object of determining whether commercial alkali can be obtained from them.

The committee also suggested that a preliminary survey should be made of the indigenous bangle industry in the Madras Presidency, and that in the light of the information obtained by this survey, it should be considered whether the department could do anything to assist the industry either by supplying the bangle makers with block glass or by giving them technical instruction in bangle-making. At the same time the committee recognizes that it is doubtful whether indigenous bangles will be able to survive the competition of Austria unless protected by heavy import duties.

I beg to draw the particular attention of the Commission to this report as the committee has placed the subject of glass blowing in India on grounds which could be discussed and criticised. The other factories, although they worked for some time, have left no proper data on which a fair discussion can be carried on.

I quite agree in the result and opinion of this committee that a glass factory in Madras is not advisable and if started could not succeed in establishing that industry in Madras. But I emphatically contradict some of the assumptions and calculations upon which they have based their opinion.

For instance, the report gives the approximate cost to the Madras Glass Factory of the materials and fuel used for the manufacture of a gross soda-water bottles :-

| | Rs. | a. | p. |
|---|---|---|---|
| Coal | 2 | 8 | 0 |
| Liquid fuel for neck making | 0 | 12 | 0 |
| Alkali | 1 | 6 | 0 |
| Lime | 0 | 2 | 6 |
| Sand | 0 | 8 | 0 |
| Total | 5 | 4 | 6 |

The report says :—" In the letter to which I have already referred, Messrs. Forster and Sons inform Mr. Beardsell that in their factory at St. Helen's metal and melting cost them on an average Rs. 2-4-0 per gross of bottles." On the strength of this information, the committee observe : " It will be seen that on these figures the cost of materials and melting is considerably more than double that in the United Kingdom."

Now, this statement of cost of metal and melting is important, as the same although made for Madras is applicable to all the provinces except Bengal.

I am of opinion that the estimate of the cost price given to Mr. Beardsell by Messrs. Forster and Sons is not quite accurate and the comparison made is based upon a misconception of facts.

In Great Britain the soda-water bottle making factories mostly use broken glass or other glass which is refuse of other glass factories. There are few factories which make soda-water bottles out of glass converted at first hand from sand and other materials. The refuse and the broken bottles could be had for the cost of clearing them from various centres, and it is only in this manner that the soda-water bottles could be turned out cheap.

But even assuming that the cost of metal and materials is Rs. 5-4-6 per gross, I beg to point out that the Director of Industries of Madras ought not to have stopped there. He could go on as below :—

| | Rs. | a. | p. |
|---|---|---|---|
| Cost of metal and materials | 5 | 4 | 6 |
| Labour | 3 | 0 | 0 |
| Sundries, breakages, etc. | 2 | 0 | 0 |
| Rings, marbles, etc. | 0 | 11 | 6 |
| Total | 11 | 0 | 0 |

The cost of soda-water bottles in Madras would be about Rs. 11 or Rs. 12 per gross. I do not think European soda-water bottles could be imported in Madras for less than Rs. 3 a dozen. That would mean about Rs. 36 or Rs. 27 per gross, which leaves a good profit if all the bottles turned out by the factory are consumed in Madras or thereabout.

The Director of Industries has gone round and round to prove that the glass factory was a failure, and has avoided the open road of comparing the prices of imported article with the home-made article, which has led him to take an unjustifiable and unnecessarily pessimistic view of the situation.

He further discusses the subject of the markets, and considers that the future of Madras soda-water bottles is very poor in the Calcutta market. I do not wish to follow him here, for that is not the object of this note. I only wish to draw the attention of the Commission to the fact that Madras-made soda bottles would pay if all the bottles made in Madras are consumed in that market. I take this as an undenied fact from this report. It has great force when considering the scheme I have submitted in this paper later on.

In supposing that the soda-water bottle making is the easiest part of glass manufacture, the Madras Government made a great mistake. It is the cheapest article sold in Europe—because it is made from the refuse and broken glass obtained from factories producing superior glass on a large scale. For this reason, to select that article for competition at the very start of an industry was economically wrong.

In 1907 I visited Japan, and as I had heard that the glass industry is being greatly developed in that country I paid particular attention to the methods which they adopted for this purpose. Japan is an Oriental country, and there is more similarity in the habits and temperaments of the industrial classes of Japan and India than that which exists in the same class in Austria and India. It is therefore important for the Indians to study the methods of Japan, and see whether they can give us some more guidance. I am not a wholesale admirer of the Japanese methods, but in this particular case their method deserves close study.

Japan some years ago produced glass bangles as China used to do. The raw material for these bangles was imported from Europe in required colours, etc., and bangles were manufactured, both plain and coloured. The Government of Japan, wishing to encourage this industry of bangle-making in Japan, tried to obviate the bangle-maker's difficulty in getting the proper coloured raw glass, and supplied the same to them on the following system. It must be remembered that up to 1907 the glass industry in Japan consistéd of very small concerns, namely a small furnace worked by a few men and women. In other words, it was a home industry. I was told all over Japan, in order to help these workers the Imperial laboratory at Japan opened a special branch, whose duty it was to stock various sized crucibles and mixtures of different coloured glass in raw form, mixed into an earthen jug and labelled. Any worker who wanted to have a particular coloured glass had only to go to a shop, where all these jugs were kept for sale, and buy one jug of the particular coloured glass he wanted at the fixed price. He could also get a crucible at a cheap price. Both these he could buy either for cash down or by payment by instalments if he can give a security of any man, including the policeman on the beat. Gradually the bangle industry rose up to an enormous extent, and the people themselves felt the need of manufacturing glass on a large scale. The professors at the Imperial Laboratory gave all help. Furnace builders were brought from Europe and new works were opened. The furnaces built in Japan are mostly of the Bohemian type built for the sake of cheapness. From the little I saw in Japan of this industry I found out that the people in Japan are labouring under the same difficulty which the Indian manufacturers suffer from, viz., getting out or manufacturing a good glass of superior quality.

There are one or two points more which I wish to deal with, before I come to the scheme which I have to submit.

The first point is, when people talk of glass they talk as if glass is an article, such as iron, copper, gold or silver. It is not so. Glass is of various qualities—potash lead glass, soda glass, and so on. Each of this quality is suited to the manufacture of particular articles. For instance, potash lead glass quickly fuses, but it is so viscous and tenacious of gas and air bubbles that it has to remain in the boiling condition for a longer time than other kinds of glasses, and requires a larger quantity of fuel. As against this, the advantage of potash glass in turning out thin articles, which are considered superior to thicker ones, as well as the increase in the number of articles turned out per ton of metal, where articles are sold per dozens, is very great indeed. Soda glass can never give so thin and brilliant articles as the potash lead glass.

Then again, a greater percentage of alkali will perhaps effect economy in fuel, but the glass will be of a striated kind, suitable for window glass, but not for any other purpose.

The glass manufacturer has got to think out what articles he has to manufacture and turn out that particular kind of glass which suits him best. In the same manner when locating a factory in any place, he has to decide previously, what sort of glass articles will form the major part of his production. If this point is not kept in view a considerable waste must result and the enterprise must come down.

In all the enterprises which were started in India this part of manufacture was not at all taken into account, and the same sort of mixtures of materials were used for turning out all sorts of articles. This is chiefly due to the fact that the people connected with different factories were lacking in the expert knowledge which is necessary in this connection. The services of an expert in this line were never requisitioned in any of the attempts made. Perhaps the concerns were so small as not to be able to bear such charges.

But this is not the only expert knowledge necessary. The "founder" of the English factories, whose duty it is to regulate the draughts in the furnaces, to keep the heat at the proper temperature, and to bring the glass to a suitable consistency for the blowers to work upon, is as essential for a glass factory in India as any chemist or mixer of raw materials.

The crucible-making is an art by itself. The furnace-making is another. Furnaces in a glass factory have got to be constantly built as no furnace could give effective service after four or five years.

All this means that for the successful glass factory, a considerable expert knowledge in several branches is necessary. If experts in each of these lines have to be ordered out from Europe, the factory must be of a very big size, so that it may bear all these charges. When one knows glass articles are cheap articles, one may imagine how large the production should be, to leave sufficient margin of profit from the sales for supplying the funds necessary for the employment of such experts. In a small concern this is next to impossible. The Tata Iron and Steel Works would never have been a success if started on a smaller scale, and even now they are trying to enlarge the works in order to reduce the percentage of the expert and supervision charges.

The other point which is to be noted is that an elaborate furnace capable of developing white heat, and for that reason constructed with the costliest materials and greatest expert skill, is necessary to convert sand into glass. But once glass is made, it can remelt in a comparatively very small heat, and an elaborate furnace for this purpose is not necessary. The bangle-makers in India and Japan remelt the broken glass to make bangles in a furnace built by themselves, with no expert skill or scientific air chambers or draughts about them.

All this leads us to believe that instead of leaving each factory to make its own furnace, find its own sand, and make its own glass, if ready-made glass is made available to them at the factory, a great strain, which now falls upon them, to maintain a furnace, and an expert to mix materials, will be removed. All that these factories will have to do, will be, to take the crude glass and melt it in an ordinary furnace and turn out the required articles out of them.

In the preceding pages I have pointed out that unless a factory is started on a large scale, it would not be able to meet the charges necessary to command the expert knowledge required for the successful working of a glass factory. In Sodepore Factory, attempt was made on a large scale. But such a huge enterprise means a large number of blowers and other workmen whom it will be difficult to bring together. The difficulty of labour to house these men, to keep them under discipline, and to take effective work from them, would be again another insurmountable difficulty.

It has been often pointed out that the difficulty in getting good glass-blowers in this country makes the introduction of this industry in India next to impossible. I do not subcribe to this belief.

In the first place, it is a great mistake to rely wholly on blowers for a glass factory. The difficulty of getting good blowers is not peculiar to India, but in England also, the same difficulty had arisen in pre-war days, and it is sure to be very acute after the war. British glass manufacturers were, for a long time past, compelled to employ Italian and German glass-blowers on a large scale.

Boys under fourteen years of age are forbidden to work at the furnace by the laws of Great Britain, and naturally they are not inclined to begin to learn a new occupation at that age. Secondly, the tastes of the people for glass articles has undergone a great change. There is a greater demand for regularity which is scarcely attainable by glass-blowers, and consequently moulds are being used for simple articles, for this purpose. Thirdly, the demand for cheap table and other glass of an inferior quality is daily increasing, and for that purpose presses have been already brought into use very largely in Great Britain. In Sawyerby's Ellison Glass Works at Gateshead an enormous output of glass tumblers, salad bowls, dishes, plates, lantern chimneys, and many other articles are turned out by simply pressing molten glass into a mould. No blowing of any sort is required in this process. Moreover, there are some articles, such as slender necked bottles, etc., which could not be pressed. They must be blown, and the

British and American manufacturers are using new patent machines for blowing such bottles and all other articles, which human blowers can turn out.

One of these is the Ashley's patent bottle-making machine. This can turn out all sorts of thick and thin bottles. All that the man has to do, is to roll the glass on a blow pipe and stick it in a socket provided for the purpose in the machine.

There is also "Forster's" bottle-making machine. The action here is similar.

There is another patent "Owen's" glass-blowing machine. This is worked very easily by compressed air and practically reproduces every operation which a human blower can turn out. Not only bottles but all sorts of articles blown into a mould by a human blower, could be made by this machine, the compressed air chamber supplying all the blowing. It is a lamentable fact that these machines are not used by the glass factories started in India.

These patent machines should considerably obviate the difficulty of collecting glass-blowers in a factory.

I am also of opinion that there are enough skilled blowers in different parts of the country. But it is doubtful whether it will be possible to collect them together and teach them to work in a factory set up on the European pattern, under trying conditions, far from their homes. The Tata Iron Company did not want skilled labour, and they were able to collect together the floating labour in the country. But the glass-blowers in India are, as a rule, not in a poverty-stricken or miserable condition that they could be easily induced to leave their homes and work in a factory.

Working in their homes and at a furnace of their own type is much easier for them, and certainly less trying, than working at a furnace emitting white heat. This therefore again reflects upon the problem of retaining, as far as possible, the Indian furnaces for turning out articles of glass from raw crystal supplied by another factory.

All these considerations lead me to conclude that the only way to establish the glass industry into India is to divide the industry into two parts, viz. (1) the crude glass-making out of sand and (2) article-making out of crude glass. I therefore propose that a factory should be started, where coal and sand could be obtained on the spot—such as the place I have shown in my report to the Bengal Government—for mostly converting sand into different qualities and colours of glass. This crude glass should be supplied to all the article-making factories in all parts of India. Blowing factories should be established in the several markets in proportion to the demand where the crude glass supplied by the above factory may be remelted and articles manufactured according to the requirements of the market.

The advantages of such a scheme are obvious :—

(1) In the first place, the coal will be extremely cheap and the raw material, namely, the crude glass, will be turned out much cheaper than it is done in presidencies like Madras or Bombay.

(2) In fact, it will be easy to supply such raw glass to Bombay and Madras much cheaper than they can themselves manufacture in their own factory.

(3) It will relieve all the small glass factories in the country the expense of erecting an elaborate furnace and maintain the same at white heat by burning coal bought at Rs. 12 to Rs. 15 per ton.

(4) It will relieve the small factories from the financial strain of maintaining experts for furnace-making and mixing raw materials to manufacture the different coloured glass.

(5) In fact, all the glass factories which are now closed could be revived under this scheme. All these factories have to do, is to remelt the glass and convert it into articles on a small or large scale as may suit the conditions.

(6) The small bangle-making factories and the indigenous glass-blowing concerns in the country, could gradually be developed into factories turning out chimneys, bottles, or tumblers, etc., in the manner adopted in Japan.

The next part of this scheme is that small or big blowing factories should be started in the towns and cities where there is a demand for articles. Perhaps it may be argued, why all these different centres of blowing factories, why not turn the articles at the factory and export them to the different market centres ?

My reply to this is as below.

(1) The responsibility in this industry must be well distributed to ensure success. The parent factory will be free from all the bother of collecting blowers and have a factory spread out over a vast area ; and also the trouble of pushing the trade of the goods produced. All that the parent factory will have to do is to turn out crude glass, which will at once be distributed to the several concerns started in different tow

(2) The transit of this raw glass to several centres will be much easier and cheaper than the transit of the manufactured articles. In this connection glass is a most troublesome article to deal with. You have to make crates and arrange the articles with great skill and care, and even then allow about 15 per cent. for breakage in transit.

(3) The railway freights for the raw materials and the finished articles leave a margin, which is an important factor. Block glass will be classified as raw material.

The only argument which could be advanced against this scheme is the waste of heat which results. I must explain this. When the glass is ready in the furnace, it is ready to be worked upon that very moment. When the metal is ready to be worked, that it should be taken out and cooled and re-heated in the blowing factories in several towns means waste of heat. But if we can go into figures this waste of heat is more than compensated by the cheapness of fuel and less bother of keeping workmen and managing an enormous and huge concern on one spot.

The scheme, if successful, will make the glass industry a home industry of India, *viz.*, an industry carried on in small homes and workshops all over the country, like the cutlery trade in Sheffield or the small boot and shoe factories in every Indian town. The work of the manufacturers of articles will be very simple, less trying, economical in point of capital necessary for the concern.

I am fully aware that the picture I have drawn of this scheme cannot be attained at once. I quite believe that the parent factory which will produce the crude glass will have no customers at the very beginning. It will be many years before the closed factories or other new blowing factories could be opened. Hence it is necessary to take some precautionary measures for the safety of the parent factory.

It is therefore proposed that window glass-making should be added to the parent factory. Window glass-making requires a little blowing, but that is not a skilled blowing. The packing for transit in this case is much simpler than in the case of the blown ware. This glass has a very great demand and there is no danger of overflooding the market in this article. Also one or two blowing factories could be attached to the venture from its very start in one or two cities, and these may be retained or disposed of as circumstances permit.

I have shown the lines on which I can formulate a scheme. I need not enter into details here.

As I have said above, the parent factory will have to be a concern requiring a large amount of capital. And in the first few years it will not be possible to make any profit. Indian capital can be hardly obtained unless there is a certain chance of profit sooner or later. Government will have to extend its helping hand to this concern for at least a few years of its infancy.

In my report to the Bengal Government I have shown that our chief competitor was Austria. Perhaps it may be argued that Government are going to stop Austria sending glass to this country in such large quantities as she used to do before the war. Some people tell me that Great Britain is determined not to allow the same trade facilities to the enemy countries, which they possessed before the war; and India may have a favourable time to develop this industry while Austrian glass imports may be restricted. I do not believe in this too sanguine a view. Great Britain and her Allies may now make the determination, but this determination will be subject to modification as circumstances would indicate in the future.

If the war had lasted only a year or two, perhaps I should have pinned my faith to the above forecast, but since the war has gone on for the last three years and promises to go on for another two years, I cannot give any credence to this forecast.

At the end of this war the Allies will certainly win, but when they enter Berlin and Vienna they will find a grim spectre of famine, devastation and ruin all over the two countries. Great Britain will then change the determination which she has made now, and I should not be much surprised if British money is taken to Germany and Austria to relieve the distress of the people there in the new rôle of mercy, humanity and charity. Any expectation of help to this industry from that quarter will therefore be misleading.

Yet again there is a new competitor coming in the glass trade of India, and that is Japan. Whether Japan may send good and superior glass or not, she will surely flood our market with cheap glass articles, and I am afraid this competition coming from Japan will be worse than that which came from Austria in the past. Any attempt therefore which may be made now to successfully establish the glass industry in India must secure all the support it can possibly obtain from Government as well as from the people of this country.

In my former report to the Bengal Government I have only given the general lines on which such aid can be given by Government in order to ensure the success of this industry.

To put it in plain words, I should request Government to place the orders for glass articles, at average prices which they have paid in the past, with us for a certain number of years.

After I submitted the report to the Bengal Government I interviewed some officers who, I was given to understand, had to recommend any action to be taken on the same. In these interviews we had a discussion on this subject. I was told to submit a list of articles which I could supply of the same quality and at the same price at which Government are buying the said articles at present. A question like this is unfair. I should certainly like to produce everything Government wanted, but the question was which of such articles I will be able successfully to manufacture and which articles I will not. Secondly, I could not fix the prices of the articles, nor could I guarantee the quality of articles which will be produced in a factory not yet existing. Under these circumstances, my request was that *all* the Government demand for glass articles may be placed with my company, and the company will exert to supply as much as possible out of its own production. Articles which it cannot produce will be supplied by purchasing from the same source from which Government is now purchasing. Surely, we, knowing something more of the glass trade should be able to buy more advantageously than Government. In any case Government is not at all put to any loss, and they will have given encouragement to an industry without spending a pie from its pocket. After two or three years we shall know exactly which articles we can produce and which not. Then perhaps the whole thing may be placed on a commercial basis by taking from us only such articles as we can produce.

Besides this concession, some sort of concession will have to be given in railway freights, as I have prayed for in my report to the Bengal Government, *viz.*, to charge our crude glass at the minimum rate of freight and the glass articles at the railway material rates, for the first few years.

If the Commission will recommend to Government that these concessions may be given to me, I can safely undertake to organize a joint stock company with all the necessary capital and take up the work at once in hand. I have spent the best years of my life in this industry, and I have given my most anxious and careful study to this industry. Should I therefore be in any way instrumental in establishing this industry in India, that will be a crowning success of all my endeavours in this field and a service rendered to my mother country. I therefore submit this note to the Commission with a hope that it will meet with their kind and searching consideration. There may be imperfections in what I have written above; perhaps I am obscure on some points; perhaps I have not expressed myself very fully. But if a chance is given to me further to explain myself, I hope I shall be able to place my scheme in as clear a light as I have thought it out in my mind. I am convinced that this is the scheme that will give a new start to all the concerns which have met with a disaster; that this is the scheme which will establish the glass industry as a Home Industry in India; and that this is the scheme which will rejuvenate all the minor industries existing now in glass articles and defy competition coming from any quarters.

### Oral Evidence, 19th November 1917.

*Mr. A. Chatterton.*—*Q.* In your note you say that you were in England for about 3½ years. —*A.* About four years.

*Q.* You were there for two years as a glass blower. What class of work did you do?—*A.* I was doing all sorts of blown ware, bulbs and wine glasses. That was the first lesson I had. I had to make wine glasses because the proprietor told me that it contained all the manipulations which are required for blown glassware. Afterwards I went to chimneys and made small bottles and globes, and lastly I was doing the work of matching ordinary broken glass which was supposed to be the most difficult one.

*Q.* Where was this?—*A.* Blackfriars Glass Works. I had a lot of difficulty at first with regard to it.

*Q.* Did you pay a premium to get instruction?—*A.* I could not succeed by giving premium, but I succeeded by going in as a workman. I have recorded my experiences in one of the issues of the *Journal of the National Indian Association*, as to what difficulties I had to meet and how I succeeded.

*Q.* Have you got a copy of it?—*A.* Unfortunately I have not got one, but I think I might get one. I shall try to find it out. The publication of the above experiences in the said journal was noticed very widely in the Indian Press and created in some degree an interest in this subject in this country.

*Q.* You managed a small factory?—*A.* When Mr. Bibbey, who is the proprietor of the glass factory in which I was working, went out of London. I was managing the whole business for about eighteen months and I was paid for it.

*Q.* Supposing students or young men are sent over to Great Britain, do you think they have great difficulty in getting into glass works?—*A.* By the right door there is a lot of difficulty, but by the back door there is not. I tried my best to get entrance through the late Mr. N. N. Wadia who was there at the time in London and Sir George Birdwood. Both of them who were interested on my behalf tried their very best for nearly six months to get me admitted in a factory, but their efforts were unsuccessful. The Blackfriars Glass Works was a very small factory, and it was managed by one individual and I cultivated my acquaintance with him, and that is how I got in.

*Q*. You got into it rather as a friend than as a businessman ?—*A*. I went there as a workman. The proprietor was a very good man. I told him all my difficulties and I was practically returning to India when I got entrance there.

*Q*. What sort of wages did you get as a workman ?—*A*. I did not get anything at first. I was paying one pound a week. I paid this for nearly a year, and then I paid nothing at all. When I was managing the factory I was paid two pounds a week.

*Q*. You came back to India and you give some account of what you did here. That apparently is not complete. After you came back have you been practically engaged in glass manufacture at all ?—*A*. Not regularly. Of course, I have made some analyses, and I have made surveys. I made a survey of the Bengal province and made a survey with regard to the Jubbulpore factory. I have been collecting a lot of information and keeping my interest alive.

*Q*. You say, " There are some factories working at the present time, but I do not think they will accomplish the objects we have in view, namely, to establish the industry firmly in the country." What reasons have you for thinking that the present procedure in regard to glass manufacture which we know is getting a big fillip on account of the war will not result in a permanent industry ? I presume from what you say here that it is in a prosperous condition because of the high prices consequent upon the war. What is radically wrong with the methods you are pursuing ?—*A*. Of course, I have expressed that opinion even in that report which I made on the Bengal province in 1905 when some of the factories were most vigorously going on, especially the one at Rajpura. I saw the factory in 1905 and when that factory was going on quite actively I expressed the opinion that that factory would not go on for another two years because I went into the figures and I saw what crystal and what fuel cost them. They used to bring sand from the Himalayas and everywhere I went into the details of the work and I found they did not produce articles to withstand the competition of the imported article. None of these factories succeeded in practically putting their articles into the market on business lines. The reasons were, high cost price, great wastage, the entire dependence upon the blowers and the imperfect knowledge of mixing and bringing out superior qualities of glass. There was no expert knowledge which was necessary for organizing the work of the factories in its details. None of these could commercially become a success. May I explain my remarks by an illustration. Take for instance the Rajpura factory. They put sand and raw materials at about 4 o'clock in the first evening. The next morning at about 10 o'clock the whole glass would be ready for making articles. No glass could be boiled in twelve hours. They used here not very pure sand and the coal was of a low quality. I discussed with the manager the desirability of keeping their glass in the fire for another twenty-four hours. I think all over England nearly all the factories keep their glass in the fire for not less than 30 or 35 hours, some even up to 40 hours. In Whitefriars Glass Works, the well-known glass works in London, they keep it for 40 or 45 hours. They would not bring out the glass before 40 or 45 hours. When the boiled glass is subjected to that temperature for a long period the glass becomes most plastic, and can give more than four times the articles that would be turned out of glass boiled only for 12 hours. The articles again made from the former kind of glass would be of superior quality.

*Q*. Do you mean to say that the principal difficulty at the present time here is that they do not boil the glass for a long enough time ?—*A*. Twelve hours is too short for preparing glass out of sand.

*Q*. The present procedure you know is that these glass factories here begin to boil the glass overnight, and it is then ready the next morning.

That you say is too short for the class of work it is to be used for- lamp chimneys and common glassware.—*A*. That is too short.

*Q*. Is that the cause of the unnecessary thickness of the glassware now made ?—*A*. That is not the only cause. Twelve hours is too short for any sort of glass.

*Q*. They boil their glass in as short a time as possible to save fuel ?—*A*. Yes.

*Q*. For the successful manufacture of glass it must be in a place where fuel is cheap ?—*A*. Yes. I have directed my remarks to that proposition.

*Q*. Your opinion at the present moment is that the glass industry generally is so unscientifically worked and the technicalities of it so little understood that the cost of production is high and the quality of material turned out is inferior, and that in normal times you will not be able to compete with imported products. That is your general summing up ?—*A*. Yes. If the working is carried on as at present. I think those mistakes should be avoided, and it should be quite possible, if a glass industry is started in India on a proper basis, by which I mean by using expert knowledge in all the different departments. There are so many points to be considered. The building of the furnace for instance. That entirely depends on the fuel which is available. Then the cost of the fuel used has got to be considered. Coal which is generally used in Indian glass factories costs Rs. 15 per ton in Bombay and Rs. 3 in Bengal. There is then the mixing of the materials and making particular sort of glass for particular kinds of articles. To use the same proportion of raw materials for all qualities of glass and different articles would be a mistake. In every branch of the industry expert knowledge is required.

*Q.* Is that expert knowledge available in the country at the present time ?—*A.* I do not think it is available in this country.

*Q.* If you are going to start *de novo* you want to get out not one expert but a number.—*A.* Yes and that is essentially necessary. The man who makes furnaces must be an expert in that line. Then there is the "Founder" whose business is to regulate the temperature of the furnace and when the metal is ready for work to gradually reduce the temperature of the furnace to make the glass sufficiently plastic for the blowers to work upon. He then goes away and his business is finished. Then the mixing department requires considerable attention, as the composition of different qualities and colours of glass requires great skill in economising cost.

*Q.* You have in this glass industry two separate industries. You have to manufacture glass which is a scientific and technical operation and then you have glass-blowing which is a species of handicraft ?—*A.* I divide the raw glass making from turning out glass articles in my written evidence for two reasons. One is there are so many factories that are working in India either successfully or unsuccessfully. All these could be utilized for our purpose. I would not like to waste all this effort and capital. I have a further justification for it. When I went to Jubbulpore, the manager told me he bought crystal ordinary crude glass at Rs. 2 a maund, and he thought it was a very good bargain. If that man had raw crude glass at his factory he would dispense with this mixer and furnace maker. There is another reason which leads me to the same conclusion. In all my travels since 1903, I have found that Indian glass-blowers could be trained to make any sort of glass articles, however complicated the process may be. It is only a week ago that I saw in Chinchini a glass-blower making a walking stick of glass about three feet long which was most artistic. It is a sort of family industry, and if these people could get crude glass, it could be successfully introduced as a home industry. They have done it in Japan. I can give another instance. Mr. Ranchoddas' factory at Ahmedabad started in about 1894 or 1895 was bringing crude glass from Austria and making chimneys, and for two years it paid a dividend. After that, the export of crude glass from Austria was stopped, this was in 1897 or 1898.

*Q.* In what year did the Austrians prohibit the export of crude glass ?—*A.* In 1896 or 1897.

*Q.* Was it actually prohibited ?—*A.* I believe by a decision of the exporters in Austria. After a stoppage of the crude glass from Austria, the merchants in India get the same in the form of solid salt sellers, which they break before introducing in the furnace. When the Ahmedabad factory was getting this raw crystal, they worked well. But when they attempted to make glass out of sand the enterprise failed.

*Q.* About your suggestion to start a central glass-works, has anything of that kind been done anywhere else in the world ?—*A.* I took the idea from the Japanese industry.

*Q.* Is it done in Japan ?—*A.* It was not done exactly in the same way, and I could not imitate what the Japanese did. I have explained in the note how the Imperial Laboratory had been helping in the matter, and they have now started big factories in which they make their own glass.

*Q.* There are two systems of glass-making apparently developed in India. There is the system which was introduced by the Austrians in which furnaces of the Siemen's class are used, also the system introduced by the Japanese in which open fire pot furnaces are used. Which do you think is the most suitable in this country ?—*A.* I should use Siemen's furnaces for certain things, and I would require pot furnaces for certain other things. For coloured glass Siemen's furnace on a small scale will never pay because in this case the shifts of work must be regular. If we have some orders just to make a few articles, which may fetch very high prices in the market, I would use the pot furnace. With a Siemen's furnace, we should have a complete organization of labour, so that all the pots in the furnace could be worked together. Naturally the output is large and therefore economical.

*Q.* Your idea is that a large central manufactory of glass should be started and for that you would import special technical experts to deal with the problems that arise and then you would sell this glass to the existing glass works and you would get these people to remelt it. One of the points that arise is this, what steps should be taken to get a sufficient number of trained blowers, trained manipulators of glass? You suggest that this can be done by the employment of presses and bottle blowing machinery. But as far as I understand, the experience in Madras where they tried these machines was that the men wanted a good deal of training to work the machinery before they could turn out a satisfactory article. That point has not been specifically dealt with in your evidence, and I should like to know what you think should be done towards training craftsmen who are going to manipulate the glass after it had been re-melted. Do you want to have a Government training school or the development of some such factory as the Talegaon Glass Works which is practically the only training place in the country? —*A.* We have two courses open to us. One is to employ blowers, if they are available. Should they be partly available, the presses and the blowing machines may be brought in use. I expect that in some centres we can get enough blowers, but in others we shall have to use the other devices. This will naturally specialize the manufacture of certain articles in certain factories, which is a desirable result. It is quite correct that men will have to be trained in handling the blowing machines and presses, but this training will be of a very short duration, almost nothing compared to the time it takes to train a good glass blower. In order to train such craftsmen, I do not want Government Training Schools at all, but if Government is inclined to help, they may send in some paid apprentices to work and learn the art in several factories. These apprentices may then be allowed to work in the factory after completion of their term of apprenticeships. Some part of the glass will be sold to local bangle makers, who have no difficulty in procuring trained labour.

*Q.* The bangle makers already get their glass from Firozabad. Do you propose that we should interfere with the trade of Firozabad?—*A.* I do not think it will interfere. I have seen the glass made there. I do not think it is of a good quality at all. There is too much alkali in it. Besides, we think we shall be able to supply at a cheaper rate a better quality.

*Q.* Apart from the technical manufacture of glass there, do you propose that you should take the bangle makers in hand and train them to do other work?—*A.* Yes.

*Q.* Do you think that their previous experience as bangle makers will be of least help to them in blowing glasses?—*A.* They know how to deal with glass. In fact, bangle makers do not confine themselves to bangles but make a lot of toys.

*Q.* They do not do any glass blowing?—*A.* They do not do it actually on a large scale, but they do something for artistic purposes. They could be more easily trained.

*Q.* As far as you know, how are glass blowers recruited?—*A.* In Great Britain formerly a lot of boys were taken as apprentices in the glass factories. But recently a law was passed prohibiting boys under fourteen years of age from working at a furnace. Combined with this a lot of new occupations suitable only for young boys have opened out. The result therefore is the scarcity of apprentices. The apprenticing system is still going on on the continent and the British glass blowers have now to depend upon the few continental glass blowers who come over to Great Britain expecting better wages than they can get at their homes. We had in our factory nearly thirty people working, and of these five were Germans and three were Italians. That should not be a standard for judging other institutions, because our proprietor was working in the Whitefriar Glass Works and after that he started his own work and he had a lot of people who were connected with him by long association or relationship and there were nearly forty altogether. But still there was great difficulty in getting blowers at times of emergency.

*Q.* Do you think there is any necessity in connection with glass factories for Government to start a place for training glass blowers. Is it necessary to have a Government School of glass blowing?—*A.* I think substantial instruction can only be had in a factory and not in a school.

*Q.* Such as the Talegaon factory?—*A.* It may be useful. It must be a regular factory where glass articles are turned out on a large and commercial scale. A laboratory is of very little practical value except for research.

*Q.* Are you going to train your labour in this glass factory? Would you have a system of apprenticeship?—*A.* It has been very successful in Jubbulpore. Lots of young men go most willingly to work. Of course, they always work for higher wages, but the works do not suffer any difficulty in getting blowers.

*Q.* How long does it take to train a glass blower?—*A.* It depends upon the individual. I should say on an average a man should be useful after six months' work and he should be a blower after a year or so.

*Q.* How much would it cost to train a blower?—*A.* The cost is inconsiderable. The glass that he spoils goes back to the pot.

*Q.* I was told by a manager of one factory in this country that the cost is at least Rs. 2,000 to train a good blower. Do you subscribe to that?—*A.* If whatever articles he breaks has got to be thrown away as a waste, of course it may cost something more. But my experience is that apprentices do not cost anything in a factory. Although they spoil a quantity of glass which can be remelted, they do some other work which compensates for all the waste. This is for unpaid apprentices.

*Q.* The question came up as to what amount should be paid to a glass works for training men as apprentices, and it was calculated that the cost would be as much as Rs. 2,000 to turn out a first class glass blower. Do you think that it is an exorbitant amount ?—*A.* If you ask me what each apprentice would cost in laboratory or school, where all the glass produced is spoiled or wasted, in fact if the laboratory is carried on only on debits without credits of any kind such as by sale of articles produced, perhaps it may cost that much. But even then if you take 50 apprentices, I do not think it would cost a lakh of rupees. In any case, I think the estimate is very loosely made, but I do not wish to express an opinion on that. But I think that in a going factory it should cost very little. It is almost an inconsiderable item, because they do not go there to spoil glass. In a going factory it must cost nothing at all.

*Q.* You recommend that instead of making the glass which is common all over the country attempts should be made to start the manufacture of potash glass or potash lead glass ?—*A.* Yes.

*Q.* How would you get over the present scarcity of potash ?—*A.* I do not know much about the sources of alkali in India. I have no practical knowledge about it but my belief is that potash can be got in India and the supply of alkali for the purposes of a glass industry could be ensured from indigenous sources.

*Q.* Assuming that there are difficulties in getting potash, is it your opinion that a better class of glass can be turned out at the present time by longer boiling ?—*A.* Yes. But some further precautions are also necessary. At present alkali is used in large proportions, which makes the glass inferior and increases the cost unnecessarily. Boiling glass for a longer time will involve no doubt an extra expenditure of fuel, but as I have explained before, the extra cost is more than compensated by the resulting output.

*Q.* Your general conclusion is that the glass factories to be successful must be in the neighbourhood of coal fields. That limits the successful manufacture to Bengal.—*A.* Yes. If the crystal is made, then I should like to have blowing factories all over the country, chiefly in the market centres.

*Q.* Simply for remelting glass and working it into finished articles, how much fuel would be required ?—*A.* Not even twenty per cent. of what is required for converting sand into glass. Then again this fuel can be inferior fuel, as glass will remelt at a lower heat. I have just made up those figures. The figures I have worked out are for converting eight tons of sand into glass. I calculate 16 tons for two days. That comes to one ton of sand for two tons of coal. That is for the making of crystal. When this has to be remelted the whole thing would be done for about two to three tons of coal. I watched this in the Jubbulpore factory, only very recently. After the glass is boiled perfectly it is very liquid at the time. Afterwards the temperature has got to be lowered for making it a little thicker so as to be worked upon, and the time taken for working it out into articles will be four or five hours. In distributing the total amount of coal used for the 12 hours, I found that the coal used during the five hours was proportionately much smaller in quantity because a high temperature was unnecessary there. I have worked it out. I think it comes to about one-fourth or even less.

*Q.* You will have in your central factory tank furnaces, and in your subsidiary factories which you will establish in those places where there is a demand for glass articles, you will have a small pot furnace ?—*A.* Yes.

*Q.* There is one other point, and that is about the manufacture of pots. Can pots for melting glass be made in this country ?—*A.* Last time when I was in Jubbulpore they had made their own pots. I am fully convinced that pots can be made as good as those imported from Japan, and I think even much superior.

*Q.* Are they actually made in Jubbulpore ?—*A.* Yes. They have tried them and they are using the same pots. Of course, they are not being made in the proper way. They have got a lot of pots lying on the floor. I saw that five or six weeks ago.

*Q.* They told me when I was in Jubbulpore that the pots were not satisfactory ?—*A.* Because they prepare a pot in three months. How will that be satisfactory ?

*Q.* You think they could prepare absolutely satisfactory ones ?—*A.* They have done it. When I went there first, they were telling me the same thing that the pots broke up in one month. But now they can go on for several months. They are now taking a longer time for drying. A pot cannot be a sound pot unless it is dried in the course of nearly a year.

*Q.* As far as you know, is the Indian firebrick and fireclay sufficiently good for the construction of various types of tanks and furnaces that are required for glass industry ?—*A.* We may have to import firebricks at first, but I think that subsequently we may have them made in India. Some experiments are made in Bengal, and I think it is quite probable that we shall succeed in making even Silica bricks in this country. No furnace can go on for more than four or five years, and there is no use in using that furnace after four years because the fuel that would be consumed would be enormous.

*Q.* Is it not the fact that most of the furnaces last for four months ?—*A.* In Rajpura they have only one furnace and——.

*Q.* That was built by whom ?—*A.* By Messrs. Burn and Co. with Indian material. At Jubbulpore they brought bricks from Germany. But that furnace also gave work for about three or four years. None of these factories gave a good trial to express an opinion whether this brick will stand or that brick will stand. They worked for one or two years and then they closed. The furnaces were not continuously under fire for four years.

*Q.* In your scheme here you talk about Government help. What benefit will you derive from Government purchasing glass articles through your agency when you start the manufacture of glass in the country ?—*A.* The point is how Government can help. My demand was that Government should buy the first class quality of the glass we turned out and they required. Then I was told to make a list of the articles that I could supply to Government and at what price I could sell them. That was a very difficult thing for me to do before I had the factory in proper working order. I said "We shall try to do everything possible. I do not know what I shall succeed in making, but I should like to have a wide field of choice so that I can see what articles I can produce and that cheaply so that I can produce them and supply to Government. For a period of five to ten years you entrust the whole Government supply to us and we shall supply from our own factory, and such of the articles as we cannot supply from our own factory we will buy and supply at the same price which you paid before. I do not think it will lead to profit, and if there is any profit in it that will be due to our buying very keenly as we are in the glass trade and know where to buy cheap. But our buying for Government will not in any way result in loss to them. The whole supply should be in our hands mainly for the reason that we have opportunities to manufacture a variety of articles at first. In turning out some we may fail but in others we may succeed. After sufficient trials, it can be established which articles we can successfully produce and then only such articles may be bought from us and the buying agency may be terminated."

*President.*—*Q.* Who are "we" there ?—*A.* Anybody that has been given the concession, those who carry out the scheme, or join me in establishing a company under the scheme proposed.

*Q.* Do they require a Government concession ? What kind of concession do you want ?—*A.* That Government should place their orders for all their glass supply with the company.

*Q.* And then you establish this company and that company will provide raw glass for all the makers in India ?—*A.* Yes.

*Q.* They can charge what price they like to any maker in India ?—*A.* Yes.

*Q.* They could kill the glass industry of Firozabad and extend that of Bombay or in any other district they wished by manipulating the prices ? You can kill the glass making industry in Madras or Bombay ?—*A.* This question presupposes that the prices will be arbitrarily fixed, not only in their proportion to the profits desired, but also in relation to the different individual customers. Suppose we sell to a Bombay factory at Rs. 10 a cwt. and to a Madras factory at Rs. 25 a cwt., the Madras factory will lose. Such manipulations could not be expected from a respectable and straight going concern. If that line is not taken the attempt will entail loss.

*Q.* It may be to your interest, or your directors may have shares in the central glass producing factory and they may also have shares in one of the subsidiary factories in Madras without any shares in the subsidiary factory in Bombay.—*A.* Such a difficulty is bound to arise in every pioneer attempt. But in a concern which is run on sound business principles such contingencies should not arise. No doubt some factories which are now making their own glass may suffer some loss, if at all, but even if one or two factories lose, we shall be giving more benefit to the country generally by selling crude glass to the whole trade.

*Q.* If you are the one central glass producing factory you can distribute your glass to any factory you please and control these factories or wipe out the same glass manufactures of, say, Firozabad ?—*A.* When this parent factory is started we can supply crude glass to Firozabad and we shall kill glass making out of sand in Firozabad. We want to do that, because we shall supply to them a material of better quality and cheaper price. So Firozabad people instead of wasting their energies in making bad crude glass will be free to devote them to the making of good and artistic glassware. This occupation will pay them better certainly.

*Q*. You can also charge any price you like. If you once kill the glass manufacture of Firozabad you will supply your glass to the bangle makers too ?—*A*. After the war we shall be controlled by the English prices.

*Q*. You do not see my point. If the Government gave a concession to any one central glass manufactory, it would put that company in a position of being able to supply glass article makers of India with glass at any price they wished to charge. They could manipulate the glass article makers of India in such a way as to wipe out the glass industry in one area and develop it in another to suit their purpose. First of all they would destroy all local glass makers by reducing their prices, and after that they would raise their price against the glass article makers.—*A*. Our prices will always have to remain under those of the European imported glass coming into India. That would be a control.

*Q*. That would be your only limit. You would screw down the glass article maker to any extent you pleased ?—*A*. It is to our interest to keep these blowing factories alive because they will be our customers. It will be to our interest to increase these blowing factories, and unless these factories make a considerable profit it will not attract people to come in and have a blowing factory, and it will be to our interest to encourage these blowing factories.

*Q*. There is a danger that your interest may be in some other direction.—*A*. After all if it is thought that we are making a bad use of the concession which has been given to us by Government, Government will have every right to reconsider the question.

*Sir F. H. Stewart*.—*Q*. You consider that there is no hope for glass making industry out here except by substantial Government assistance. Is it too complicated for private enterprise or have private enterprises lost their money and the public their confidence ?—*A*. They have lost their money too often and they would not come out again. According to what I have submitted to the Commission, one of the essential conditions is that glass factory must be started on a large scale. There have been so many failures in the country that the people would now be shy of buying shares in a glass factory unless they have got a thorough assurance that the scheme is fully scrutinised and Government has given a substantial concession. Unless they have got a fresh assurance that the thing is *boná fide* and has been well thought out, I do not think that private capital will come forth.

*Q*. A number of experts will have to be brought out. Will they be easy to find ?—*A*. I think so. I am in correspondence with one or two of my friends there with regard to the Jubbulpore factory. They would come here and stay for some two years or so.

*Q*. There will be an increased demand for them in England after the war ?—*A*. There would be, but I think we can get a few if we offer attractive terms. There are several factories in which there is the chief man and an assistant of his, sometimes even two assistants. One of them could be got.

*Q*. These experts would be of two kinds, scientific men who would conduct the preliminary research and investigation and the men who are connected with foundry and mixing.—*A*. One expert would be for the furnace and he would be the founder. The other man would be the chemist.

*Q*. You must have both of them ?—*A*. Yes, and the third of course would be the man who would know everything in the blowing department.

*Q*. How many of these people would you want for a central factory ?—*A*. I thought of bringing out six. Practically each department should be under an European expert at least for one year, or if possible for two years.

*Q*. As regards labour you see no particular difficulty in getting this ?—*A*. No.

*Q*. With reference to the factory at Sodepore near Calcutta, I understood that it failed from want of skilled labour. In your own note you say that they had six German workmen. —*A*. And they went away.

*Q*. Had they not more than six as a matter of fact ?—*A*. I visited that factory in 1903-04.

*Q*. That was seven or eight years after ?—*A*. I could only get information from Messrs. Heilgers and Company. They told me they had a lot of difficulties there. The Germans who came out there were attacked by malaria fever and so on, and they went away. I did not see it in working order. I saw it at the end of 1903 or 1904.

*Q*. That was six or seven years after it had failed. Is it not the case that it failed owing to want of skilled labour after the loss of the European labour ?—*A*. Yes.

*Q*. And they could not replace them ?—*A*. They told me that they tried to bring some boys but they also would not stay on. I have shown in my statement how I propose to deal with this difficulty.

*Mr. C. E. Low*.—*Q*. You describe your difficulties in getting into glass works in London. Are you in a position to say whether it is more difficult for an Indian to get into the works than a Britisher ?—*A*. It depends upon what Britisher you mean. If he is a British workman it is easy for him to enter. But I think it is fairly difficult for a man of the middle class to enter. I do not blame the people for that, because a lot of these people are jealous of gentlemen coming to their factory and learning the art.

*Q*. That is economic and not racial. What I want to know is, is there any evidence of racial discrimination, or is it simply economic ? The man wants to save his trade ? Is an Indian kept out as an Indian as against a Britisher ?—*A*. When I wanted to get into a works it was mentioned to one or two proprietors of a firm, and before I left Bombay they had promised that they would take me up. I met them in London and I went to the glass works and after the people there saw me, the very next day a lot of people did not come for work.

*Q*. It was on the part of labour ?—*A*. Yes. Then the proprietor sent a wire to the gentleman to whom he had promised that he would take me and he asked me to go back to London. I worked in these works for only a day. In one or two cases the firms said that they liked to help Indians but they could not take the risk.

*Q*. Because of the trade unions ?—*A*. I do not know whether it was trades unions or their own prejudice. My two attempts failed in that way. But once you go along with the workmen, I do not think the difficulty remains.

*Q*. When you get to know the workmen ?—*A*. Yes.

*Q*. Were you in a position to know what that prejudice of the workmen was due to ? Was it a racial one or were they afraid of foreign people acquiring their art ?—*A*. I could not explain that.

*Q*. So far as you were concerned, it was on the part of workmen rather than of the masters ?—*A*. Mr. Powell of the Whitefriars Glass Factory always welcomed me whenever I went to him for advice, and he always showed me things without any reserve, and yet he would not allow me to take a blow pipe in the factory.

*Q*. Is it due to trade union regulations among the glass blowers ?—*A*. We all met together once and they gave me a sort of patta saying that they would not take objection to an Indian or something of that sort. That was in 1902, but of course, there is a difficulty. I could not define it. I think it has something to do with racial and something with trade union —a sort of combined prejudice. As a contrary experience I knew of a student who wanted to study pottery and the student was taken in with open arms, and he was practically one with the workmen.

*Q*. It depends on the workmen ?—*A*. Yes. To a certain extent.

*Q*. At one time in Jubbulpore I was informed—this was about five or six years ago—that they were in difficulty owing to the magnesium contents of the limestone. Has that difficulty been got over ?—*A*. The difficulty is there still. I think they have got a different stratum about half a mile away.

*Q*. Why do you say that as cheap fuel is of importance in crystal making, the works must be confined to Bengal ? What about the coal fields in the Central Provinces and the other coal fields in other parts of India ?—*A*. I do not put it as a positive statement. You can have works where sand and coal can be found.

*Q*. You say, "I do not think that European soda water bottles could be imported in Madras for less than three rupees a dozen." That is four annas each. Do you mean now or before the war ? Before the war I do not know what it cost to import soda water bottles, but the ordinary price was four annas each.—*A*. That is about three rupees a dozen.

*Mr. C. E. Low*.—Four annas was the retail price.

*President*.—*Q*. Mr. Low suggests that you are not quite accurate in saying that they could not be imported for less than Rs 3 a dozen, whereas they could be imported for very much less than that.—*A*. The Niagara bottle, the best soda water bottle, could not be got for less than Rs. 3 a dozen.

*Q*. You stick to the opinion that Rs. 3 a dozen is the normal import price ?—*A*. It may be less for inferior bottles.

*Mr. C. E. Low*.—*Q*. You speak of bottle making machines. I suppose that unless they turned out a certain number of bottles they could not pay. Do you know what the minimum output is ?—*A*. I have seen the "Owen's" in working order and I have seen "Ashley's". Owen's makes about 40 to 50 bottles a minute.

*Q*. How many must you turn out in order to make that machine profitable ?—*A*. I have seen Owen's, but it has been used for two days and not used at all for another two days, and so on.

*Q*. Is that working economically ?—*A*. Yes. If it required steam or some other power, I should say it would not pay, but it is more like a tool which could be used whenever opportunity arises and laid by when it is not wanted. The only thing which will be wasted is the interest on the value paid for the machine, which I should think is inconsiderable.

*Q*. Where was that ? In England ?—*A*. Yes. Are there any indigenous glass blowers in India as opposed to bangle makers ?—*A*. Some who make attar phials and some who make some little glass sticks.

*Q*. Where do they live ?—*A*. Saharanpur, and the other day I saw some blowers in Chinchni making beautiful things.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q*. What were you before you went to England ? —*A*. I graduated here from the Elphinstone College before I went to England.

*Q*. But not in science ?—*A*. I took a two years' course with Professor Gajjar. I went on a scholarship from the university to England.

*Q*. What induced you to take up this line ?—*A*. I was in this line long before I went. I was going to Mr. Justice Ranade and doing some work for him, and it was he who suggested this idea to me.

*Q*. You have been to Austria and Germany also ?—*A*. Not for study.

*Q*. You only visited the works ?—*A*. Yes.

*Q*. Were you allowed to go and see these works in Austria and Germany ?—*A*. I was allowed just to go round because I went with a man who was a foreman.

*Q*. There also they are very strict ?—*A*. They asked me whether I was interested in glass works.

*Q*. If you were, they would not allow you ? Did you see any Japanese working in these continental factories ?—*A*. In Gablontz I saw one Japanese gentleman. He was learning the making of colours. We met in the evening and I asked him how he got into the factory and he said he was a relation of Baron Hyashi who was an Ambassador in London, and he said that there was a lot of disturbance. But then he was there all the same. He was not getting proper treatment.

*Q*. Did you give any advice to the works that you mention at Rajpura, etc. ? Have you given your opinion and advice to start factories ?—*A*. Whenever I had an opportunity I never declined to give my co-operation or advice. But the thing was that one or two people asked me to join in starting a factory and I went into details, and I found out that the scheme was not sound enough and I did not want to gamble with other people's money, and my withdrawing and refusing to join in such concerns rather created a certain amount of prejudice under which I am now labouring.

*Q*. You had nothing to do with the starting of any factory ?—*A*. No.

*Q*. You had been to Japan also ?—*A*. In 1907.

*Q*. I suppose you must have met many Indian students sent by the Indian National Association there. Are they getting fair treatment, and are they able to have access there ?—*A*. They are better that way. They are comparatively very free there. They had no complaint.

*Q*. How many years does it take to study there ?—*A*. Two or three years. That really depends upon what you wish to learn. If one wants to become an accomplished blower he may have to practise blowing for two years. If one wants to become a skilled workman only he may gain his object in different periods in different branches. But if one goes to study the details of every department in glass making, so that he may be able to organize and start that industry in India—which I consider is the real scope for educated Indians going abroad for industrial education, two or three years ought to be quite sufficient to master the details of the glass industry, provided he has fair opportunities to see various works, but so far as glass and pottery are concerned, I think a trip to England is essential. I do not think that even Germany can give that instruction of organizing details on sound lines. The glass that is made in England is of the finest class and the most costly glass in the whole world. Gablontz is also producing costly glass, but that is because of the coloured and fancy articles.

*Q*. Does India consume the best or the cheaper articles ?—*A*. I do not mean best in the way of cost, but 'best' means an article that will last.

*Q*. Does India get continental goods ?—*A*. Yes.

*Q*. Because India does not want to pay more.—*A*. There are tumblers and tumblers. The tumblers which cost Rs. 8 a dozen are finer and last longer and they are made of better glass than those which are sold at Rs. 2 a dozen.

*Q*. My question is this : When you say that you must go to England to learn the manufacture of better types of glass articles, India generally imports and consumes cheaper articles, and a study in Japan will be quite enough for starting the industry ?—*A*. It is a very difficult question. There is no factory which can produce only inferior classes of articles. There is nothing like a better glass producing factory or a lower glass producing factory. When pottery and glass articles are made and they come out, they are divided into first class, second class and third class. The first class articles manufactured in the continent for instance go over to America or England and the second class is consumed in the continent and the third class either has to go back to the furnace again or they are sold practically at the cost price. This classification comes in only afterwards. The factory is not originally intended to produce inferior glass articles.

*Q*. To have the superior kind of articles more skilled labour is necessary ?—*A*. Labour turns out all things at once. The articles are sorted out after they are ready. If the labour is high class it will produce more firsts and less seconds and thirds.

*Q*. What causes this difference ?—*A*. There are articles in which some part is a little faulty, or there is an air hole in it. Supposing there is a little black or white speck in a tumbler, that goes into the third class. In flooring tiles there is the first class, the second class and the third class. There is a difference of 25 per cent. in price between the first and second and 25 per cent. between the second and the third.

*Q*. And you think that a man who studies in Japan will not be a skilled man ? Can he be useful as a recruit to the factory here ?—*A*. I do not want to be misunderstood. I do not want to deprecate Japanese learning. I think that people who have taken their education in Japan must go to England for a year or so and see the various ways in which the English people are manipulating the glass.

*Q*. Would it be advantageous to send a boy for study when he is comparatively young ? —*A*. Yes. If you wish to make him a skilled workman.

*Q*. He may have graduated here in arts, or is it necessary that he should be a graduate in science ?—*A*. If it is science it would be better, because a man before going must first make all the investigations that he can possibly make in India itself, and perhaps if it is cheaper to go to Japan he may go to Japan, but let him complete his education in England.

*Q*. A graduate in science would be better than a graduate in arts ?—*A*. Science learning would not help much.

*Q*. There is no college of science in Bombay ?—*A*. I have seen in many cases M.A.'s and M.Sc.'s They had to undergo a special course like myself.

*Q*. Do you know about the students that the National Indian Association had sent to Japan and who after their return to India are working in any of the factories ?—*A*. I have not got any knowledge whatever about it.

*Q*. To have a very successful concern, what do you think should be its capital for a big factory ?—*A*. For a big crystal making factory and one or two blowing factories I have calculated in this scheme about 10 to 12 lakhs of rupees. If you want to add to it window glass making there will be another five lakhs because you require a lot of machinery.

*Hon'ble Sir R. N. Mookerjee.*—*Q*. Where have you submitted your scheme ?—*A*. I wrote it in abstract, and I have submitted there that such and such a thing should be done. Here I have submitted some statements and these statements were prepared after I had worked the details. I thought that the details would not be necessary.

*Q*. What expert knowledge have you in glass work ?—*A*. Nothing more than that I was apprenticed in a glass factory for about two years and that I have worked as a manager of a small factory for about eighteen months in England. In fact, I was there about four years.

*Q*. Have climatic conditions anything to do with the manufacturing of glass ?—*A*. I do not think that will be a difficulty here at all. They do not find it in Jubbulpore.

*Q*. You have not been able to tempt any big capitalist in Bombay to start a glass factory ?—*A*. I did not want to tempt anybody until I saw the thing clear.

*Q*. You have now a new scheme and you think it will be successful ?—*A*. I will have the satisfaction that I am putting something substantial before the public. I had two occasions to join two factories, but I did not do so for the simple reason that I did not think that enterprise would be successful financially.

*Q*. In the last paragraph of your written statement you have asked the Commission to recommend Government to give some concession.—*A*. Those concessions which I have asked before.

*Q*. Do you want the concession for yourself ?—*A*. For any company. That is my scheme. I put in that paragraph because if the Commission desires any guarantee that an enterprise will be started with the concessions I have asked for I am prepared to give it. That is only a token of my earnestness. There is no reason why I should submit a scheme and others should get the concessions. It is not reasonable that one should conceive a scheme and another should execute it. The scheme I have submitted is based upon various details I know and experience I have gained.

*Q.* Without these concessions you will not be able to float a company successfully ?—*A.* At the present moment I do not see my way clear.

*Q.* Do you think you can compete with the imported articles ?—*A.* I have thought over the point and I am convinced that I will.

*Q.* Do you mean that you can compete against foreign articles if the importers have to pay more for the railway freight than you have to pay ?—*A.* Yes. And further our cost price will be less than theirs.

*Q.* If you get these concessions for a certain period and afterwards they are withdrawn, will you be able to compete ?—*A.* Yes.

*Q.* How will you be able to compete when you can only make profit on the freight ?—*A.* By that time we shall have done away with the expert. The expenditure on the experts will be a heavy item on this factory.

*Q.* Do you think that in a big factory with 10 or 15 lakhs of capital the expert's pay is a heavy item ?—*A.* The experts that I propose to bring over here—there is a good deal of difference between the meaning of the word 'expert' as you use it and as I use it. In glass trade the man who is an expert in furnace building is not an expert in mixing. So I want not one expert but many of them, and I have to pay them all well.

*Q.* What will you have to pay for a good expert ?—*A.* Some people like to take a trip to India for six months and they may come on easy terms.

*Q.* Suppose you had a two years' agreement with them. —*A.* They would not come for less than a £1,000, perhaps more, if you want really able hands.

*Q.* You think that without these Government concessions the scheme can never succeed.—*A.* I cannot see it through.

*Q.* What did the Japanese Government do in helping such an industry ?—*A.* They have done much more than I have asked. The imperial laboratory took an active part in teaching the people how to mix the material, etc.

*Q.* Any subsidy or grant ?—*A.* Grants are mostly given in regard to supplying crystals. I was there only for about a fortnight and learnt that Government in Japan spent a considerable amount of money in supplying expert knowledge, raw materials, and giving grants to several companies to start glass works.

*Sir D. J. Tata.*—*Q.* In answer to Sir Fazulbhoy you said that in Japan they make only inferior glass, and you advise that if anybody wanted to study the manufacture of glass he should complete his education in England. In another place you explain that all glass is made in one furnace, and then it is divided into first class, second class and third class. When you say that the Japanese make only inferior articles, I do not quite understand you.—*A.* No glass that is brought out is bad in quality as glass. The first class, second class and third class are with regard to the manufacture of the finished article. The Japanese put more alkali into the glass, and they turn it out so cheap, and naturally they bring out more seconds than firsts. Besides the materials they use for economy turn out a bad quality of glass.

*Q.* The raw material used is inferior ?—*A.* Yes, and mixing is not so good.

*Mr. G. A. Thomas.*—*Q.* What is the proportion of first, second and third class in the output ?—*A.* That depends upon the factories. In Powell's works, second class was only 20 per cent. of the first, and in Sawyerby's works it was about 30 per cent.

*Q.* Is the highest proportion of the glass turned out of the first grade ? Do they make more first grade than the second and the third ?—*A.* The majority is first grade.

*Q.* Its market is practically confined to United States and the United Kingdom ?—*A.* Yes.

*Q.* Where would a market be found for the first grade articles turned out in India ?—*A.* The supply to Government. The Government is buying first class articles here. We shall not make 50 per cent. of first class article but we shall make 25 or 30 per cent.

*Q.* It does not depend upon the workmen, but upon the quality of the class ?—*A.* It depends upon the workmen as well as the quality of glass.

*Q.* I thought you said that it did not depend upon the workmen but on the class of glass turned out.—*A.* On workmen also. Suppose a good quality of glass tumbler is made and it has got a speck here or there, it goes into the second class.

*Q.* If the Indian factories turn out the same quality of glass as is turned out in Austria and Germany, where will you sell the Indian articles ?—*A.* The middle class are trying to discriminate between good and bad glass.

*Q.* On the continent they are content with second class glass ?—*A.* Now.

*Q.* There will be a better demand in India than on the continent for first grade articles ?—*A.* Yes.

*Witness.*—I want to address the Commission on the subject of those people who like myself go to England and other foreign countries, and when they return find very great difficulty in utilising their experience, and I thought that I should suggest that there should be a certain arrangement by which the knowledge and the experience of these people could be taken advantage of.

*Q.* Have you got any specific proposal to make ?—*A.* I know in my own case I could not do very much, and then if I do not do it I have always got to live in an atmosphere of distrust. That is not the only case, but I have got dozens of cases like that. A gentleman who had a good university career here, an M.A. and B.Sc., went for learning paper manufacture to foreign countries, and when he returned he could not do anything and he went to his former occupation on a small salary. Then there was another man who had learnt pottery. I tried to introduce him to some of my friends, but it was of no avail, and that man is still wandering about. On the top of this the whole thing results in creating a sort of distrust in the minds of other people who can afford capital, and those men after running all risks and undergoing all kinds of hardships have to break their lives in a most injurious manner. When I came back, difficulties came in the way and I went and saw the Hon'ble Mr. Clark four times, moved the Bengal Government to take some action, and I should have been content if they had examined my proposals and found them impracticable, but nothing has been done. Those people who have returned from foreign countries have got to live very hard lives. I have heard some gentlemen passing some remarks about them that they have lost their character and are whiling away their time, and that has had a most injurious effect upon the Indian public. For all these reasons, I submit that some arrangement should be devised by which those people who come back—they may be competent or incompetent, it does not matter what they are—can bring themselves into contact with the public and show whether they can do something or cannot do anything, and I certainly think that the Commission will conceive some such arrangement by which the knowledge gained by Indians may be tested and utilised. I suggest for that purpose a sort of Board of Industries consisting of about ten or twelve commercial men of capital with the Director of Industries as secretary. One of the duties of this board should be to consider any scheme that has been put forward by any man who has learnt a particular profession or trade in some foreign country and wishes to do something in that line in India. This may be one of the functions of the board if it is started.

*Q.* Your problem is to find some way by which a scholar who has returned from foreign countries may be employed ?—*A.* Yes. May have a trial.

*Q.* Have you got any definite scheme to suggest by which a returned scholar automatically will come under the supervision of some board or authority for the purpose of being given a trial ?—*A.* I do not go to that extent. The man who has learnt a thing and has got a scheme to put forward before the public, if he can start an industry big or small, he should be able to place his scheme before capitalists who may take a favourable or unfavourable opinion of it—he must have some avenue by which it may be possible for him to put his scheme before capitalists.

*Q.* Ordinarily, a scholar who goes to Europe for a three or four years training is not in a position to put forward a scheme for a new development in India or in any other country in the world, but is in a position to begin practical work, and, after demonstrating his value as a practical workman, is in a position to take a superior position as a manager ; and if he demonstrates his value as a manager, then he is in a position to persuade the capitalist to take up some scheme for expansion that he may have in his mind. But if as soon as he returns he puts forward a scheme of the kind that you suggest, it is likely that the public will not have confidence in him until he has proved by actual work in this country that he understands the particular industry as applicable to India.—*A.* That is quite correct. What I mean to say is that the scheme may be examined.

*Q.* You cannot examine the scheme if you have not got experts. Where is the glass expert in India to examine your scheme ? Why have you not taken the post of assistant manager in one of the factories ?—*A.* I wanted to stay in India.

*Q.* In India there are several factories.—*A.* In Ambala they proposed that. I knew practically that it had no working capital.

*Q.* Apparently you do not seem to judge the Ambala man quite fairly. He is doing very well.—*A.* He may be doing very well—I do not know. When I went there in 1903 they had no working capital. I said that I would take it on a partnership basis provided the capital was forthcoming. That is how the Ambala affair ended.

*Q.* Your terms did not suit him ?—*A.* I told him that we would require more capital.

*Q.* Your terms did not suit him and the negotiations fell through ?—*A.* He could not find more capital. He wanted me to take on the factory as it was being conducted.

r N B. Wagle.

*Q.* Your terms did not suit him and the negotiations fell through. Is that correct ?—*A.* That is the result. He did not want to expand the thing. I could not bind myself to a factory which was not progressive.

*Q.* Your difficulty is that these returned scholars do not get fair opportunities of proving their value ?—*A.* Yes. There must be some sort of arrangement through some agency of Government or the public for the purpose.

*Q.* Would it be feasible if the scholarship is continued for twelve months after their return so that they can go into the workshop and work without any pay, but they should conform to the rules of the workshop, until they understand the Indian conditions ?—*A.* Any trial of that sort will do.

*Q.* You had no opportunity of working in a glass works after you returned ?—*A.* No.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* You wanted to work as a partner ?—*A.* Yes.

*Q.* And you did not want to work as a salaried officer ?—*A.* No.

*Q.* If the Ambala man got the capital you would work as a partner ?—*A.* The views I held then and now are quite different. The scheme that I gave out in those days to the public was a scheme which I now find to be impracticable. At that time I said that I would start a soda water bottle factory, and so on. The Madras people started the soda water bottle factory.

*Q.* Those who accepted your advice failed ? The students who return from foreign countries want to go in more as partners ?—*A.* I am not particular whether they get a partnership.

*Q.* If you wanted to show your skill and worth you should have taken up some appointment and shown to the people that you were worthy of their confidence.—*A.* Yes. I had to earn my daily bread.

*Q.* But you get a reasonable pay.—*A.* If I got a reasonable pay I should have done that. I should have worked there if they would give me a trial. I could have worked without pay for a month or two months only.

*Sir D. J. Tata.*—*Q.* You say that a man who has returned from England should have opportunities of proving his worth. Does the man who goes to England go to learn an established trade, or something new ? Supposing a man goes to England and learns to make, say blotting paper, and there is no factory in this country. How is he to find employment ? Should a factory be set up to employ him ? I do not understand your point.—*A.* I am confining myself to the man who goes and learns a trade and when he comes back he must be made responsible to do something in regard to that particular trade.

*Q.* Every kind of trade does not exist in the country.—*A.* That can be avoided by sending scholars for particular trades. Most of the students who go to England go with a scholarship and when giving these scholarships it should be possible to see whether they would be useful to the particular trade or not.

*Q.* When a man goes out to train himself as an electrical engineer that means that Government should start some electrical engineering works ?—*A.* Before he goes he must be asked to go in for a certain trade which is available in this country.

## WITNESS No. 307.

Mr. T. W Bonner.

### MR. T. W. BONNER, *Locomotive Superintendent, G. I. P. Railway Company.*

### WRITTEN EVIDENCE.

### *Training of Labour and Supervision.*

Skilled labour and apprentices.

To complete a mechanical engineer's education, technical instruction is absolutely necessary, but judging from the recommendations made by various committees associated with engineering colleges in this country, the procedure for instruction is the reverse of what I consider it should be. For instance, I am occasionally asked to allow students from various colleges to attend the workshops for practical instruction during college vacation, whereas I consider it should be the other way about. Apprentices should be called upon to attend the colleges for a short period during each year of their apprenticeship for theoretical instruction.

Technical education is an adjunct to mechanical training and cannot be looked upon as a substitute for practical experience. There are a number of colleges and scientific and technical institutions in this country which are capable of teaching up to a high standard, but there is a serious want of elementary ground-work. If the object of the engineering colleges or similar institutions is to train students who are to make their way in the world as mechanics and earn their living by their capabilities as such, I fear the training now given can never be a success, but on the other hand places the student in a false position.

General education essential.

In this country the available material is of poor quality and has little aptitude for the assimilation of technical knowledge. A sound general education is therefore the first consideration before the student is fit to undertake his combined practical and theoretical training. This training should extend over a period of five years. Courses of instruction can then be permitted in the testing room and drawing office, which are usually for the best of reasons the last stages of his training; a youth cannot be taught mechanical drawing unless he thoroughly understands, from a practical point of view, what he is drawing.

Technical schools and railway workshops.

I consider that a technical school under the Department of Education or of a Department of Industries should be attached to each important railway workshop in India and subsidized by Government. These schools and other existing technical institutions might with advantage be endowed by wealthy gentlemen of this country, in order that scholarships might be given to deserving students to enable them to finish their training in Europe. It is essential that young men destined for the higher grades of the mechanical profession should complete their training in Europe or elsewhere, as methods and practice obtaining in this country are not always the latest, for obvious reasons.

Night schools.

I am strongly against evening classes or technical instruction after the usual shop hours. Any youth at the close of a day's work in the shop is not fit to receive theoretical instruction, and a large amount of time is lost owing to youths being too fatigued to concentrate their minds on the subject being taught. I consider the best arrangement is to give them two or three afternoons weekly for instruction during working hours.

Indians as mechanical engineers.

The better educated classes of Indians have not hitherto and apparently will not come forward for training as mechanics. I put this down, amongst other reasons, to a dislike of the rigorous training in the workshop, which involves a certain amount of hardship, in that they have to submit to the same conditions as the ordinary workman, but unless they go through the mill they can never hope to take the place of covenanted men.

I have had over 30 years' experience as a mechanical engineer on this railway, and I must say that the progress made by the Indian staff towards greater efficiency in any one of the departments of the service is certainly far from encouraging. Mechanical engineering does not apparently attract the more intelligent classes, and we have to fall back on those who in most cases are unable to think for themselves. Under these circumstances, I fail to see what Government can do, unless, perchance, it can arouse in the educated classes a realization of the dignity of labour, and a determination to be worthy of the name of an engineer in the true sense of the word. The Government cannot help the Indian unless he helps himself, and there are no grounds for the supposition that he has not a fair and open field to show his industrial and mechanical ability, if he would only do so.

I have vacancies at the present time in the railway workshops for lads who have had a good general education, and who are willing to serve an apprenticeship of five years, including theoretical instruction at the technical institute. This training is equivalent to that given to a premium pupil or apprentice at home and has the advantage of costing much less. I have no applicants.

(*Witness gave confidential oral evidence.*)

### WITNESS NO. 308.

MR. F. J. PAGE, *Locomotive and Carriage Superintendent, B. B. & C. I. Railway (Broad Gauge).* *Mr. F. J. Page.*

### WRITTEN EVIDENCE.

*Training of Labour and Supervision.*

Lack of primary education affects efficiency.

I am of opinion that, while the lack of primary education does not necessarily involve lack of skill on the part of certain classes of workmen, it indirectly affects their efficiency as a whole for the following reasons among others :—

(1) Other things being equal I think the man who has had a primary education is more likely to wish to know why he performs certain operations connected with his trade, and this attitude of mind is very necessary for a workman to excel in certain trades.

(2) It is very desirable that all mistries and chargemen should be able to read and write in some language and should be able to perform simple calculations.

The smaller the number of men able to do this the smaller the number from which chargemen and mistries can be drawn, and consequently the smaller the chance of getting the best men, as the men who are by nature best fitted for such work are generally distributed equally among educated and uneducated alike.

(3) I consider it will be found that those countries in which the workmen are most efficient are those that have the best simple technical literature within reach of the workers. This type of literature cannot exist without a large number of workers capable of reading and understanding and also able to obtain the literature without expending an appreciable percentage of their income in purchasing it.

(4) One apparent disadvantage charged against education is that so often educated men are found in practice to be less reliable than uneducated ones; especially is this the case when the number of educated men in a certain grade bear a very small proportion to the total. I consider the reasons for this are not far to seek. An educated man placed to learn under men who possess little or no education feels a certain sense of superiority in virtue of his education, and this is liable to affect his work and to make him take less pains in performing his duties than would otherwise be the case.

Again, he often feels that he should receive a higher rate on account of his education, whereas while he is training and working as a journeyman his value to his employer is the measure of his skill in performing certain operations which may be just as efficiently performed by an uneducated man.

Steps to improve the labourer's efficiency.

I consider it is desirable that simple text books in the vernacular should be prepared on such subjects as—

Applied Mechanics.
Steam and Steam Engine.
Gas and Oil Engines.
Carpentry.
Smithwork.
Foundrywork, etc.

Training of apprentices

I have a certain amount of experience in training apprentices. While on the S. I. Railway I was responsible for introducing a scheme of training for apprentices and started a night technical school which was found rather unsatisfactory and altered to a day technical school. It was found that the majority of the lads were not fresh enough in the evenings to benefit by the teaching given. The day school was in works hours and a marked improvement was noticed in the work done.

On the B. B. & C. I. Railway workshops at Parel we have 139 apprentices and the circular giving terms of service is attached. A drawing class is held during work hours for educated lads. It is proposed to extend the scope of the technical class as soon as conditions permit, but the war has prevented action being taken just yet.

One of the main problems in the training of apprentices is to ensure that their training receives that close personal supervision on the part of foremen and chargemen without which the best results can never be attained.

To help in ensuring this, a system is being adopted under which the foreman or assistant foreman is required to set each apprentice working under his charge a specific piece of work once in each six months and to report on the way in which it is done and the time taken, etc. This report is entered in the Apprentices register which is handed to him on completion of his term of service.

Industrial schools.

I have had very little experience with men from industrial schools and that little has been confined to carpenters.

On the S. I. Railway at Negapatam we had a number of lads who were trained at the Karur Industrial School and their work was well reported on by the foreman, though I do not consider they were on the average superior to the railway trained workmen.

In our Bombay works we have very few carpenters trained at industrial schools and as far as I have been able to ascertain no other classes of men. Several of our carpenters have been trained with furniture makers in Bombay and many have been trained in their villages and start on rough work when employed.

Above systems compared.

I consider that the value of industrial schools is limited to districts where training is not obtainable by other means.

It would also seem limited to teaching those trades which do not need expenditure of large sums in machinery which is continually becoming obsolete or where the amount of capital required per hand employed is small.

Where factories or workshops exist in which apprentices can be trained I do not consider there is any scope for industrial schools, by which I mean schools where trades are taught, but I do consider that some arrangement should be made to provide elementary technical education in work hours, where this is possible. As to whether the organization should be under the Department of Education or Department of Industries I am not able to form an opinion.

Indians as supervisors.

Before considering measures to be taken for training supervising staff, it seems desirable to suggest some of the causes of the difficulties which now exist. My experience is confined to work that may be all classed under the head of mechanical engineering.

In the first place, my experience leads me to believe that the average Indian does not naturally take happily to this sort of work. He possesses a type of mind which, while it may excel in philosophy and kindred subjects, has never, so far as history seems to show, made a mark in engineering. The Indian makes a very clever workman, and in some trades the work of individual men could not be excelled, but there is a great difference between a good workman and an engineer.

There is such a tendency manifested to reduce everything to carrying out rules rather than applying principles, and the capacity for doing the latter is to a great extent the measure of a man's ability as an engineer.

There are many circumstances which have in the past militated against the intelligent Indian becoming a mechanical engineer, one being that manual labour is held as derogatory, and while this is not such a barrier as it used to be, it still restricts the number of young men entering the field. I think, however, a far greater difficulty is the financial one. It may help in the consideration of this phase of the subject if we consider conditions at home. A fully qualified journeyman in an English engineering works will draw 35*s.* per week, while a chargeman probably draws 38*s.* The foreman might draw 80*s.* and up to 100*s.* in some cases.

The superior supervision except in isolated cases is paid little more than the foreman. Clerical staff on the whole receive a lower average rate than the journeymen.

Of the young men with good education in England who commence training as mechanical engineers, my experience leads me to believe that only quite a small proportion rise to any position of responsibility in the mechanical engineering profession. Many drop out and pursue other callings. Many go to sea as ship's engineers, and only quite a small proportion consisting of the luckiest or the fittest make their mark. Except in the case of a few men with overwhelming influence, there is no assured prospect for the mechanical engineer. He usually has to take the rather slender chance of making good with a probable chance of failing.

I think it is partly due to these conditions that mechanical engineers in England and America attain the high standard which exists in these countries, and without this competition such a high level would not seem probable.

Now, while in England and America the unsuccessful engineer has a trade at his hand at which if he chooses to work he can draw probably 60 per cent. of what he would do in a superior grade and has also the chance of going to sea. Conditions in India are very different. If a young man obtains a good secondary education and a technical training, he stands the chance, if after his four or five years of works training he is unsuccessful in obtaining a suitable superior position, of having either to work as a fitter for considerably less remuneration than if he had started as a clerk with a less costly education or of having to follow some other line of business, having practically wasted his technical education and training.

The very great difference that exists in this country between the rates paid for the supervising class and the rates paid to the workman is to a great extent responsible for this state of affairs.

Taking this fact alone into consideration, it is hardly to be wondered at if the intelligent lad chooses a calling in some department where prospects are assured to a man of good behaviour and average ability.

It may be suggested that the obvious remedy would seem to lie in paying the workman higher, but here the question of individual efficiency comes in. It can easily be shown that in many trades, if the cost of supervision and coolies be considered, the cost of carrying out work with comparatively cheap Bombay labour is considerably higher than it would be in an English shop paying English standard rates.

In cases where the use of expensive machinery is involved the lower productive capacity of the individual workman increases the burden of interest and depreciation charge which still further enhances cost of production.

Any considerable increase in the labour rate would not therefore seem likely in the near future.

Having suggested some of the causes of the lack of first class Indian superior supervision it remains to propose some remedies which is a much more serious problem and one which at present I consider almost insurmountable.

It would seem that the line of least resistance is to obtain the deficiency in superior supervision by importing from those countries that can produce a surplus until such time as the average standard of education among mechanics is so raised that the deficiency can be met locally. I am very doubtful if any artificial method of rearing such men will produce the stamp of man required to design and supervise the manufacture of machinery.

Assistance to supervisors, etc., to visit foreign countries.

There is no doubt that the visit of certain supervisors, managers and technical experts to study conditions and methods in other countries might be productive of good, but I imagine that Government would experience great difficulty in adopting any basis for giving monetary assistance which would limit the trips to those cases in which the results obtained would make the investment commercially sound.

*Statement showing where the carpenters employed in our carriage building and repair shops receive their training.*

| | |
|---|---|
| Carpenters trained in B. B. & C. I. Shops .. .. .. | 51 |
| Apprentices in B. B. & C. I. Shops at present .. .. .. | 19 |
| Carpenters from the School of Arts .. .. .. .. | 3 |
| Carpenters from the Bombay Furniture Makers .. .. | 28 |
| Carpenters from the G. I. P. Railway .. .. .. | 22 |
| Carpenters from the villages in Gujerat and Deccan .. .. | 267 |
| Carpenters from the Central and United Provinces .. .. | 27 |

*Statement showing the number of apprentices working in different shops on the broad gauge section of the B. B. & C. I. Railway, Parel.*

| Shop. | Europeans. | Anglo-Indians. | Indians. | Goanese. | Parsees. | **Total.** |
|---|---|---|---|---|---|---|
| Erecting .. | 5 | 1 | 13 | 3 | 2 | 24 |
| Coppersmith .. | .. | .. | .. | .. | .. | .. |
| Tinsmith .. | .. | .. | 3 | .. | .. | 3 |
| Machine .. | 6 | 5 | 17 | 5 | .. | 33 |
| Brass Shop .. | .. | .. | 6 | .. | .. | 6 |
| Millwright .. | 1 | 1 | .. | .. | .. | 2 |
| Boilermaker .. | 2 | 2 | 3 | 5 | .. | 12 |
| Smithy .. | .. | .. | .. | .. | .. | .. |
| Springmaker .. | .. | .. | 1 | .. | .. | 1 |
| Foundry .. | 2 | .. | 9 | 1 | .. | 12 |
| Patternmaker .. | .. | .. | 4 | .. | .. | 4 |
| Carriage .. | .. | .. | 22 | 2 | .. | 24 |
| Paint .. | .. | .. | 7 | .. | .. | 7 |
| *Apprentices in Running Sheds.* | | | | | | |
| Rutlam .. | .. | 2 | .. | .. | 1 | 3 |
| Gangapur .. | .. | 2 | .. | .. | .. | 2 |
| Shamgarh .. | .. | 1 | .. | .. | .. | 1 |
| Ahmedabad .. | .. | 1 | .. | .. | .. | 1 |
| Parel .. | 1 | 2 | .. | .. | 1 | 4 |
| | | | | | Grand Total .. | 139 |

## APPENDIX.

### *Rules for Apprentices.*

1. The B. B. & C. I. Railway shall from time to time employ young lads as apprentices and afford them opportunities of acquiring training in the various duties which they will have to perform as skilled workmen.

2. Lads elected will work as probationers, and if found suitable will be employed as apprentices. The period of apprenticeship shall ordinarily be that shewn against the respective grades. The Locomotive and Carriage and Wagon Superintendent's decision in all matters connected with apprentice service shall be final.

The probationary period will terminate on the completion of one full calendar month's service.

3. During the period of their training apprentices, if considered eligible, will be required to attend the technical classes which will be held during working hours, and will receive wages as per scale overleaf which will be paid monthly, and within these limits the actual rate of pay allowed to each individual shall be regulated by the Locomotive and Carriage and Wagon Superintendent according to abilities, satisfactory conduct and progress both in the workshop and technical class.

4. Apprentices shall be bound as to hours of attendance at work, and all matters concerning conduct and discipline by the same rules as apply to the regular workshop staff with such modifications therein as may from time to time be authorized by the Locomotive and Carriage and Wagon Superintendent.

5. Indian, Parsees and Goanese apprentices shall not be entitled to any leave with pay but European and Anglo-Indian apprentices will be allowed leave in terms of sub-paragraph 15, paragraph 283 of Agent's Office Manual, Volume 1. If apprentices are absent from work without permission or if they commit any breach or neglect of duty or are guilty of any mis-

conduct they shall be liable to a fine, suspension from service, compulsory leave without pay or summary dismissal at the discretion of the Locomotive and Carriage and Wagon Superintendent.

6. Each apprentice on completing the full term of service will receive a bonus as under provided his attendance, general conduct and application to work were satisfactory :—

| | | Rs. |
|---|---|---|
| European and Anglo-Indian | | 150 |
| Indians | Literate | 100 |
| | Illiterate | 75 |

An apprentice who leaves the service before completing his full term of service shall not be entitled to any bonus whatever. But if the Locomotive and Carriage and Wagon Superintendent is satisfied that an apprentice has been obliged to leave the service before completing his full term in consequence of illness or other circumstances beyond his control, he may, at his discretion, sanction a proportionate amount of bonus not exceeding 75 per cent. of the full amount, to be paid to him provided always that the unserved period does not exceed one year in any case.

7. The bonus will not be payable in the event of death of an apprentice.

8. No apprentice shall at any time have any claim to the amount of bonus which shall be paid or withheld entirely at the discretion of the Locomotive and Carriage and Wagon Superintendent whose decision shall be final in regard thereto and who may withhold the whole or any portion of it without assigning any reason for so doing.

Each apprentice shall be given a copy of these rules and after the same have been duly explained to him, he shall sign a certificate stating that he understands and agrees to be bound by them.

The company engage apprentices in these works to the following trades, *viz.*, fitters, turners, erectors, boilersmiths, blacksmiths, tinsmiths, moulders, carpenters, carriage builders, coppersmiths and painters.

The rates of pay per day given during apprenticeship are as under :—

*European and Anglo-Indian Apprentices.*

| | Grade I. | | Grade II. | |
|---|---|---|---|---|
| | Rs. | a. | Rs. | a. |
| On probation | 0 | 8 | 0 | 8 |
| 1st year | 1 | 4 | 0 | 14 |
| 2nd „ | 1 | 8 | 1 | 0 |
| 3rd „ | 1 | 12 | 1 | 2 |
| 4th „ | 2 | 0 | 1 | 4 |

*Indians, Parsees and Goanese.*

| | Literate. English. | | Literate. Vernacular. | | Illiterate. | |
|---|---|---|---|---|---|---|
| | Rs. | a. | Rs. | a. | Rs. | a. |
| On probation | 0 | 6 | 0 | 4 | 0 | 3 |
| 1st year | 0 | 10 | 0 | 6 | 0 | 5 |
| 2nd „ | 0 | 12 | 0 | 7 | 0 | 6 |
| 3rd „ | 0 | 14 | 0 | 8 | 0 | 7 |
| 4th „ | 1 | 0 | 0 | 10 | 0 | 8 |
| 5th „ | .. | | 0 | 12 | 0 | 10 |

"*Europeans and Anglo-Indians.*"

NOTE.—Grade I. For Europeans only who have passed VII Standard. It will be generally confined to the sons of B. B. & C. I. Railway employés of long and good service.

Grade II. Is for other European and Anglo-Indians of good qualifications, such as lads who have passed the V Standard.

"*Indians, Parsees and Goanese.*"

NOTE.—By the term "Literate" is meant one who has studied up to Standard VI in English, and up to Standard V in Vernacular in a recognised School.

F. J. PAGE,

*Locomotive and Carriage and Wagon Superintendent.*

*Certificate to be signed by the Apprentice.*

I have received a copy of the rules which have been framed regarding Apprentice service and the same have been fully explained to me. I hereby agree to be bound by all these rules.

Witness. Signature of the Apprentice.

Shop——

*Dated, Parel Works.*

### ORAL EVIDENCE, 19TH NOVEMBER 1917.

*President.*—*Q.* What are these 139 apprentices you have got in the shops? Do they confine their apprenticeship training to one section of the shop, or do they go through all the different shops?—*A.* In the case of the fitters, erectors and engine turners, those men go through the three shops; in the case of a certain number of college men, to whom we give a short practical course, they go through about four shops. With those two exceptions the men are trained just for one trade.

*Q.* What pay do they get when they complete their apprenticeship?—*A.* We have fixed maximum rates for various trades, differing in the case of fitters and turners they go up to Rs. 2-5-0 a day, and some other trades, boilersmiths and blacksmiths, Rs. 2-8-0, carpenters Rs. 1-11-0 a day, depending on the rates usually paid to that class of men in the Bombay Presidency.

*Q.* Have you ever attempted to get a superior class of apprentice, educated men who would go through the whole of the shops, with a view to becoming all-round mechanical engineers?—*A.* No, we have a certain number of our men who belong to the higher grade of apprentices, those who pass the 7th standard, who go through a few of the shops but not all. Our intention has never been to make them more than chargemen, so they remain tradesmen as distinct from engineers.

*Q.* How many have you got?—*A.* Of the men who have passed the 7th standard, 6 Europeans and one Hindu.

*Q.* What pay do they get as chargemen?—*A.* They rise to a maximum, for covenanted men, of Rs. 9 a day; certain others go up to Rs. 6. It varies between Rs. 6 and Rs. 9 a day; some get even less than that.

*Q.* When your seven men have finished their apprenticeship and are appointed as chargemen, will they get the same pay?—*A.* They will not be appointed as chargemen immediately on completion of their apprenticeship but will have to serve as fitters.

*Q.* When do they ultimately become chargemen?—*A.* That depends on whether they show themselves capable of it, and what vacancies occur. There is no fixed rule.

*Q.* Do you appoint any of your apprentices to be chargemen?—*A.* Yes, we have quite a number; not necessarily of those who pass the 7th standard.

*Q.* Will your Hindu chargeman get the same pay as the European?—*A.* No, we have varying scales. The European rises to a maximum, for covenanted men, of Rs. 9 or Rs. 8; but the non-European goes to about Rs. 5 a day.

*Q.* What is the reason for the difference?—*A.* Well, the reason I suppose is that we find it desirable for the efficiency of the shops to have a certain number of European chargemen, and we cannot get European chargemen on less than Rs. 9 a day, and we can get other men for less than Rs. 6. We can get as many non-Europeans as we can do with for under Rs. 5 a day.

*Q.* Have you many Indian chargemen?—*A.* Quite a large number; I suppose in the region of 80 per cent. Indian or Goanese or Parsees. We have a large number of Parsee chargemen.

*Q.* And all your Europeans are from home, or trained in your own workshops?—*A.* There are a few trained by ourselves; and some are from other railways.

*Q.* Do you make a distinction between a European brought from home and one trained in your own workshops?—*A.* Covenanted Europeans we put on a maximum of Rs. 9. They come out on a three years' contract. We get them out with a view of making them foremen, and keep them until there is a vacancy or send them home.

*Q.* He is a made man and selected as a superior man?—*A.* That is so. He is selected only as far as a chargeman is concerned, but may not be quite suitable for a foreman.

*Q.* Have you any Indians who attain the rank of foremen?—*A.* No, not in the shops; we have two in the Running Sheds, Parsees.

*Mr. C. E. Low.*—*Q.* You speak in the first portion of your evidence of the effect of the lack of primary education on the skill of workmen. Don't you think also that primary education has some effect on the man's standard of comfort; that it makes him anxious to earn more money?—*A.* Yes, I think it would.

*Q.* If he has got any idea that he could do himself better, he would like to do so and make the money to do it with?—*A.* Yes.

*Q.* We have had it put before us by many witnesses that much of the inefficiency of purely mechanical labour, like that of mill labour, for instance, is due to a low standard of comfort. Would you be prepared to agree with that?—*A.* I think it is borne out by the fact that some men who work on piece rates, and who could make more money stop away after they have earned a sufficient week's wage.

*Q.* Among the various steps to improve the labourer's efficiency you speak of vernacular text books. Have you come across any such?—*A.* I have made inquiries; have spoken to the Principal of the Baroda Technical Institution, and he said he did not know of good books on the subject. Most of our Indian-speaking educated men are Gujarati speaking men, and the books would need to be in Gujarati, except in Poona where the language is Mahratti.

*Q.* Do you get many Parsees as fitters?—*A.* Not a large number now; we used to have more than we do at present. We have a number of Parsee chargemen.

*Q.* Do you get Gujarati Brahmins as fitters?—*A.* I do not think so. It is not usual to have Brahmins as fitters. In South India where castes are more easily distinguishable I had very few Brahmins as fitters or machine men.

*Q.* Have the Education Department anything to do with your technical classes?—*A.* No.

*Q.* They do not give you a grant or inspect you?—*A.* No, as a matter of fact our technical classes are merely drawing classes at present. The technical classes proposed have not been started yet on account of the war.

*Q.* Towards the end of your written statement you sum up a very interesting discussion of certain differences between industries by saying: "The very great difference that exists in this country between the rates paid for the supervising class and the rates paid to the workman is to a great extent responsible for this state of affairs". Is that because labour is inferior in this country and not worth so much money, or because you have to pay the supervising class, who are largely Europeans, more money?—*A.* Both. Certainly the efficiency of the individual workman is very materially lower in the engineering trade here than at home; that is borne out by the fact that, although on the B. B. & C. I. Railway, where comparatively high labour rates are paid for in India, it costs us quite 30 per cent. more to do certain work in one of the shops than for similar work that I have knowledge of in England, although the men earn on the average not more than one-half.

*Q.* If by some means the value and skill, and therefore, presumably, the earnings of the workmen were increased, it would tend to diminish that difference between the wages of the supervising class and those of the workmen, because the workmen would not want so much supervision for one thing?—*A.* Quite so.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* Do you think that if these books are published by Government in the vernacular, your workmen would be better able to understand them?—*A.* I think they would.

*Q.* And should Government publish these works?—*A.* With Government help, possibly some of the technical schools would be able to supply men to publish them; but at present there is no means for Gujarati-speaking men to understand the principles of these different subjects which I have mentioned.

*Q.* If they study up to the higher standards in English then they would not come at such a cheap rate of wages?—*A.* Yes. I think that would probably be the case.

*Q.* You say, "I think however a far greater difficulty is the financial one". What is the financial difficulty?—*A.* The financial difficulty is that the mechanical engineer at home, is, to a great extent, drawn from a class of men who have just gone through the ordinary fitter's course and been apprenticed at some engineering workshops. He has had a fairly good education and probably worked at evening classes. A great many of the mechanical engineers are not college men in England; the result is that these men only stand a slender chance of making their mark. A lot of them do not succeed, but they go into other walks of life. They have certain prospects held out to them, which are quite lacking to the Indian aspirants who go through these shops. He is simply a fitter on Rs. 2 a day.

*Q.* At the end of your written statement you say, "I am very doubtful if any artificial method of rearing such men will produce the stamp of man required to design and supervise the manufacture of machinery". What do you mean by "artificial"?—*A.* Training men in colleges and selecting men quite early in life for positions in which they will be assured of rising to the supervising grade. It is quite possible that only one out of 20 will be fit for such positions.

*Q*. Do you think that to qualify these men better you must send them with scholarships to England for further study ?—*A*. Personally I doubt if sending them with scholarships to England would be a good thing, because we do not know how many of that number are going to be a success. At present we get out men for three years; if they are not successful they go back home again. With scholarship men there would be a responsibility for retaining them.

*Q*. You could send them after submitting them to some test ?—*A*. Tests are very difficult things. For supervisors' work it is not only a knowledge of mechanical engineering that is necessary, but he must be able to deal with men; to get work out of the men; to supervise them, in other words.

*Q*. You give here a list of men working in your department ?—*A*. I just took one shop and one trade in one shop, just to show where the men received their training.

*Q*. In India what is the highest salary a man gets at your place, in the case of Indians in the erecting and other departments ?—*A*. That list is simply one of apprentices.

*Q*. How much do they get ? Rs. 15 ?—*A*. More than that. I forwarded with this our rules* regarding apprentices, in which I have given all the rates.

*Q*. There is no difficulty in getting apprentices in your works ?—*A*. We do not receive a much larger number of applicants than the men we take on. I think we could do with more men, and are not overburdened with apprentices.

*Q*. In regard to the financial difficulty which you mention, if you offered to pay more, you could get more men ?—*A*. We are getting sufficient men for our own requirements.

*Q*. You have them for five years ?—*A*. Five years in the case of men under a certain educational standard; and four years above that.

*Q*. What is the highest salary an Indian gets in your department ?—*A*. In the shops or running sheds ?

*Q*. In the shops ?—*A*. In the shops the highest is a Loco Accountant.

*Q*. I mean a mechanic in the workshops ?—*A*. Rs. 5-8-0 a day is the highest.

*Q*. And a European in that department would get double ?—*A*. No, the maximum for a man obtained from England would be Rs. 9.

*Q*. But if you get the man from here ?—*A*. The maximum he could rise to would be only Rs. 8. There are only a few who rise to that.

*Q*. Do you think that these men whom you get as apprentices are trained well and work well ? Do they take well to the work or do they leave the work and go away ?—*A*. A good many leave; some stick. A great many leave when they get other positions. We do not mind that, but favour it rather.

*Sir D. J. Tata*.—*Q*. You just now said in answer to Sir Fazulbhoy that a fitter, if he cannot get on in the shops, goes out and gets Rs. 2 a day. Roughly, what does a fitter in your shop get ?—*A*. Rs. 2-5-0 is our standard rate for fitters.

*Q*. You say, "Conditions in India are very different. If a young man obtains a good secondary education and a technical training, he stands the chance, if after his four or five years of works-training he is unsuccessful in obtaining a suitable superior position, of having either to work as a fitter for considerably less remuneration than if he had started as a clerk". What is this remuneration ? You said it was about Rs. 2 a day ?—*A*. Only for an average of 24 days a month.

*Q*. You say "if he had started as a clerk". A clerk begins on Rs. 15 per month.—*A*. Not on the B. B. & C. I. Railway. They start on Rs. 25 in Bombay.

*Q*. Why "with a less costly education" ?—*A*. The clerk has a more costly education in India, because he has to be English-speaking.

*Q*. Then is this statement correct, "than if he had started as a clerk with a less costly education, or of having to follow some other line of business, having practically wasted his technical education and training" ?—*A*. I understood this was a reference in the question regarding the supervising, not training of chargemen but training of engineers. It is in reference to the question put.

*Q*. My object is to point out that as a mechanic he earns much more than he would as a clerk. It would be much better to be a mechanic than to be a clerk.—*A*. I don't think so; I don't think it is the case in India. In the railways the clerks get more than the mechanics.

*Mr. A. Chatterton*.—*Q*. You have 139 apprentices in the Bombay workshops ?—*A*. And Running Sheds; that includes the Running Sheds.

*Q*. Are your workshops sufficiently near the G. I. P. Railway shops, so that the two workshops could combine and run a technical school ?—*A*. Yes, we are within 50 yards of the locomotive shops, but three miles from the carriage shops.

---

**Vide* Appendix to written evidence.

*Q.* Then it would be practicable in Bombay to have a school in the neighbourhood of the shops to give such technical training to all the locomotive workshops apprentices.—*A.* Yes. We had intended to do the teaching in our own workshops; there is a room already prepared for it. One advantage would be that we could get the men there the first hours in the morning. It would not be an insurmountable difficulty to let them go to some central school, if there was some place.

*Q.* It would rather be an advantage to have a large number of men to draw from for your technical school?—*A.* Yes.

### WITNESS No. 309.

**Mr. G. N. Potdar**

MR. G. N. POTDAR, B.A., *Chemical Engineer (Tokyo), Manufacturing and Consulting Chemist, the Pioneer Alkali Works, Limited, Bombay.*

### WRITTEN EVIDENCE.

**Capital**

I have had some experience in collecting capital for a private partnership concern as well as for a joint stock concern, and I have found that the difficulties on this score are so many and so overwhelming that many a concern has succumbed for want of the necessary capital at the proper time. The only sources of capital are the savings of the middle classes, the money-lenders and the banks. The middle classes have not confidence in new industrial undertakings. The money-lenders require exorbitant rates of interest and the existing banking concerns do not cater for the requirements of industrial undertakings, especially in the early stages of their growth. Security of machinery, plant, stock in trade, etc., count very little or not at all with the banks. I know some three or four concerns which had to wind up their businesses for want of small amounts of working capital, while their investments in plant, buildings, etc., were 10 to 15 times the amounts needed by them.

**Government aid.**

It is here that Government aid should step in. Assistance would be needed in the form of money grants for new or existing concerns for carrying on experimental work in tackling new or difficult problems. Bounties and subsidies should be given to such concerns as have to compete with imported articles, in case these latter enjoy special privileges in the country of their origin, or in case these have monopolised the Indian trade by long continued use. Industries, *e. g.*, in knitted goods, glass, toys, etc., deserve this form of help, as these articles have to bear a very keen competition from the imported ones. Pioneer industries, such as the manufacture of colours, chemicals, varnishes, paints, etc., especially those which, on account of their national importance must be nurtured by the State, should be helped by the Government subscribing one-third or one-fourth the share capital, or by guaranteeing for a period dividends which may be returned by easy instalments. Smaller concerns may be helped by loans in money, machinery etc.

**Exemption from taxes.**

In chemical industries alcohol is required as the basis for manufacturing other organic products such as ether, chloroform, iodoform, etc., and as a solvent. It would be impossible to use in these manufactures alcohol on which a high duty has to be paid in India, especially when similar products are prepared from duty-free alcohol in foreign countries and then imported into India. The restrictions on the use of duty-free salt should be also removed. At present the manufacturer has to purchase duty-paid salt and afterwards the duty is refunded, but by this arrangement a large amount of money is locked up unnecessarily. The Government, in any case, has to depend on the rendering of accounts for the quantities of salt consumed, so from the start the duty free salt should be sold to manufacturers.

**Government contr**

Government should not place any restrictions on account of loans, subsidies or guarantees, etc., except yearly auditing by Government auditors. The appointment of Government Directors would be a source of difficulty rather than of help. All kinds of loans, subsidies, etc., should bear easy interest and be refundable, exceptions being made only for experimental purposes.

**Other sources of capital.**

The interest on advances to industries made by Government in any form may yearly amount to an appreciable figure, and this, with yearly recurring grants may form a good industrial fund increasing early in volume. Another source of capital for industrial undertakings would be the Postal Savings Bank accounts. As this Department is under Government control this account could under proper restrictions be very well utilised as a big industrial fund. Still another source would be the Insurance Companies. It is well known what enormous profits these Companies are making and the risk of payment with them is very small. Government can by enactments make it compulsory on the Insurance Companies to invest capital in indigenous industries. Another potential source of capital will be found in the religious endowment funds of the several temples all over India. These funds should be made over to the representatives of the people, to be utilised for industrial purposes. Even in the case of possible competition with an established external trade Government aid need not be reduced or stopped, but on the other hand it should be systematically given, especially when there is a good case for the utilisation of the raw materials in the country.

**Technical aid.**

Except in the case of agriculture, Government has done very little in offering technical aid to industries. Demonstration factories would prove very useful in a number of instances, *e. g.*, the manufacture of porcelain, enamelling, of lacquer ware, papier maché, hand loom weaving, calico printing, etc. Many of these industries could be carried on on a big scale or as cottage industries provided there is complete organization for procuring raw materials, sale of finished products, etc. The success of the Paisa Fund Glass Works of Talegaon has encouraged investors and we now have about four more glass factories started in these parts.

**Consulting Engineers.**

It would be a great boon to many concerns if Consulting Engineers are appointed to give them advice on difficult problems. But only competent technical chemists of foreign experience should be selected for the posts. Ordinary mechanical engineers would not be of much use in giving technical advice. These technical advisers should not be allowed to purchase machinery, plant, etc., because, in order to earn good commissions, they may recommend defective machinery or they may show partiality towards certain machinery dealers.

**Experimental stations.**

It would be a good step if Government starts experimental stations in different parts of the country. The work of these stations should be to advise farmers, traders, and industrialists about the uses of raw materials, seeds, manures, machinery, etc. All advice should be given free of charge. In Japan such stations are founded all over the country and are doing very useful work.

**Commercial museums.**

The Commercial Museum at Calcutta no doubt nearly approaches the standard of utility, but the few others, for example, the one in Bombay, are mere shows. Every district should have its own museum attached to the High School as practically we have no technical schools even in Presidency towns. These museums should have both the popular as well as the educative side and should prominently display the local industries as well as the possible commercial development from the raw products obtainable.

**Exhibitions.**

The museums should be supplemented by annual exhibitions, where actual working processes for certain industries may be shown.

**Supply of raw materials.**

Government at present allows certain raw materials, such as wood for matches, at concession rates. Ordinarily a cartload of forest wood is charged annas six and the concession rate is annas two per cartload. But for want of good roads and other difficulties in felling and removing the wood, the actual charge comes to about Rs. 7-8-0 per cartload for a distance of about 20 miles from the forest. So the concession is almost of no value to the match manufacturer. The best way to help such factories would be to plant suitable wood in coupes, and directly to supply the required quantities to match factories at reasonable prices. Government may even start a splint and veneer making plant in or near a forest and supply these to match factories. There should be at least one technological institute in the provincial towns and if possible more in the important trade centres. Each institute should be an independent body and it should restrict its activities to particular groups of subjects according to local conditions. The best way to develop these institutes would be to make their work suit the requirements of the public. The permanent museums may be directly attached to these institutes and shows and exhibitions should be yearly arranged to attract and educate the people in scientific ideas.

**Reference Libraries.**

There is not a single reference library in technical and scientific works in Bombay, and as it is impossible to purchase all technical books owing to their high cost, the small manufacturer has to grope in the darkness as best as he can. A good reference library having all up-to-date technical books and dictionaries would be a boon to all industrialists.

**Railway and steamer freights.**

The railway and steamer freights on cheap raw materials and on manufactured products are very heavy, and it is very difficult to compete with imported articles, especially on account of the cheap sea freights they enjoy. The transport of articles for distances of three or four hundred miles in India is more costly than transport from Europe or Japan to India. The steamer freight from Bombay to Karachi is heavier than that from Japan to Bombay, and is nearly equal to that from Europe to Bombay. Freights will have to be considerably reduced in order to assist indigenous industries. So also railway charges are almost prohibitive. We have to procure minerals from Mysore, Rajputana, and Bengal. The cost of these articles when brought to Bombay is enhanced by four or five times the original value. Even the railway charges for coal should be considerably reduced, so that the selling value in Bombay of good coal is not more than double its original value.

**Railway extension**

We have recently obtained a lease from the Central Provinces Government of the Lonar Lake deposits. The lake is situated in Buldhana district, 60 miles from the nearest railway station, about 48 miles by a *pucca* road and twelve miles by a country road which is almost useless for traffic during the rainy season. The development of the lake and its products has been mainly retarded by difficulties of transport. A railway line right up to the lake should be recommended, and till the line is constructed the existing roads should be well metalled and bridged. The surrounding country is very rich in agricultural produce. So the railway line is expected to be a paying concern from the start.

Extension of our present concern.

Besides the working of the above lease, we have been chiefly engaged in the manufacture of heavy chemicals in Bombay—chemicals required in the cotton mills for sizing, bleaching and dyeing purposes and in other industries. In order to develop in the above lines we especially require duty-free common salt at a cheap rate and also we wish to utilise the by-products of salt manufacture for extracting magnesium chloride, potash salts and bromine. According to the present method of salt manufacture these by-products get mixed with the salt as it forms and cannot be separated. So we wish to obtain concessions for putting up salt pans on a different plan so that salt as well as the by-products can be recovered at a cheap cost. For this purpose we want cheap land on the Thana creek at an easy distance from a railway station. We wish to prepare sulphuric acid from pyrites and, with the use of common salt and the pyrolusite, prepare bleaching powder, which has a very large local and outside demand. For the above purpose we require railway concessions and freight for bringing in pyrites, manganese, copper ore, etc. We also require duty-free alcohol to be utilized in some of our manufactures.

I believe India is well suited for the manufacture of tannin extracts. There are various raw materials containing tannin available in large quantities and a ready demand exists for the solid or semi-solid extracts in tanneries, in the dyeing trade in India, as well as in foreign countries.

Utilization of waste.

The ash from husks and shells of many kinds of grains and oil seeds contains a good deal of potash. It seems worth investigating whether potash can be recovered from these because the chief source of potash is of enemy origin.

ORAL EVIDENCE, 19TH NOVEMBER 1917.

*President.*—*Q*. What is your training and experience as a chemical engineer ?—*A*. I went through a regular course of applied chemistry in a Japanese university. I went through almost all the branches of chemical technology, and after that I studied in the various chemical factories for two years.

*Q*. Under what conditions did you work in the factories ?—*A*. I was allowed as an apprentice through the recommendation of the university authorities. I was taken as an apprentice in the several departments. Of course they did not give me any pay, and I did not ask for any pay. I was working as an apprentice only.

*Q*. As a regular servant of the company ?—*A*. Yes, only without pay.

*Q*. Did you find any difficulty in getting into these works as an apprentice ?—*A*. There was great difficulty no doubt especially with the joint stock companies : they would not admit the students so easily, but with special recommendation from influential people it was possible to get admission in the factories. Especially we had an Association there, the Indo-Japanese Association ; Count Okuma and such big people were in the Association and through their recommendation it was possible to get admission into the factories.

*Q*. What is this Association composed of ?—*A*. At that time it was composed of some big influential Japanese gentlemen and some Indian students and Indian merchants doing export and import business in Japan.

*Q*. What is the object of the Association ?—*A*. Simply to promote their social affairs and, of course, to give advice to students, Japanese students in India and Indian students in Japan.

*Q*. Is there a large membership ?—*A*. Not very large, about 50 or 60.

*Q*. Did you in any way succeed in getting any kind of chemical appointment ?—*A*. I got an appointment of chemical analyst in a sulphuric acid factory in a suburb of Tokyo. I was working there for about a year, and then I attended several other concerns.

*Q*. You were only working regularly for one year, and you then paid visits to other factories ? Are you allowed to see what they make in the factories ?—*A*. They do not object.

*Q*. What kind of chemicals were you making ?—*A*. I was making soda ash, bleaching powder, iron and copper sulphate, and sodium bicarbonate.

*Q*. By what process ?—*A*. Leblanc process.

*Q*. Is the factory manned entirely by Japanese ?—*A*. Yes, almost all the factories are entirely staffed by Japanese.

*Q*. You suggest that if Government should give any kind of help to new industries, you would not advise the appointment of Government directors, as they would be a source of difficulty rather than of help ?—*A*. Yes, because they only look at industrial concerns from the financial point of view, but in a chemical concern, a manufacturing concern, there would be many difficulties which of course a Government director will not be able to realize, and thus there will be difficulty, I think.

*Q*. Others also would look at an enterprise from the financial point of view, would not they ?—*A*. There is not the financial side alone, there are the technical and manufacturing aspects also.

*Q.* In spite of the fact that you get Government money ? —*A.* So long as the Government take care of getting a return on their investment I do not think Government should interfere.

*Q.* But would anyone like to put money into a concern and to have no control over it ? —*A.* Especially in new concerns.

*Q.* Would you put money in a new concern and have no control over it ?—*A.* If control means not only financial but every detail of the work, then there will be difficulty.

*Q.* You would not approve of a Government director being on the board ?—*A.* Of course he may be on the board but the board, although they manage generally, of course, exercise only a nominal control.

*Q.* Do you know anything about company law in India ?—*A.* Yes, I myself am connected with some company.

*Q.* Do you know anything about the statutory responsibility of a director ?—*A.* Yes.

*Q.* So you are asking to amend the law, so that a Government director on the board will have no say in the business ? *A.* Of course he may have a say, but if he controls every detail there will be difficulty.

*Q.* Do you seriously put forward this proposal ? Do you think any sensible Government or a sensible body of men will listen to this idea of putting money into a company and having no control over the money ? *A.* Control of money is a different thing.

*Q.* If Government money is spent in a business, Government will naturally want to know how that money is spent ?—*A.* I worked with many firms, with capitalists, and I always found that it was very difficult to satisfy them as regards the working, and almost all the concerns had to break in the middle.

*Q.* Because you could not satisfy the man who provided the money ? *A.* Not that I could not satisfy, but he wants to realize profits immediately and does not want to take any risk. That is not so with the Government.

*Q.* Who is it you are referring to as having obtained a concession in the Lonar Lake ?—*A.* It is myself. It was first in my own name, but it has been transferred to the Pioneer Alkali Works.

*Q.* What is your company making ? *A.* At present we are making washing soda, copper sulphate and sulphate of soda, and other medicinal preparations.

*Q.* Are you making soda by the Leblanc process ? *A.* No, this is only a purification process.

*Q.* I know, but have you so far made any soda ? —*A.* In the Lonar Lake we have started very recently, but we have not got crude deposits as yet.

*Q.* Before that you did not make any soda and put it on the market ?—*A.* What we make in Bombay is the purified product from the crude soda, we do not make any by the Leblanc process.

*Q.* From where are you getting soda ?—*A.* We get it locally from the market as well as from Cutch and other States and some other places.

*Q.* What is the quality of the sodium carbonate you make ? Does it contain sulphate or chloride ? *A.* The crude soda contains generally from 75 to 80 per cent. carbonate. Our product is a pure substance.

*Mr. C. E. Low.* *Q.* In the Lonar Lake what is the quantity of salt you hope to obtain ? Do you think the quantity will be so very big as to warrant the construction of a railway ?—*A.* It will be I think about 300 to 400 tons a month.

*Q.* That would not pay a railway very much ? —*A.* The railway will be a paying concern by itself

*Q.* You get 300 or 400 tons ?—*A.* Yes.

*Q.* What do you get in the rains ?—*A.* In the rains we do not get any, but we keep stocks.

*Q.* Now you say that at present you have to pay duty on salt used for industrial purposes, and that the duty is subsequently refunded ?—*A.* Yes.

*Q.* On what do you get the refund ? On the salt sold or on the quantity consumed ?—*A.* On the quantity consumed.

*Q.* They don't get salt duty free here ?—*A.* It is being used in the mills for bleaching purposes. They purchase the duty-paid salt.

*Q.* The Government of India will give salt in proper quantities for industrial purposes free of duty : it is a recognized principal.—*A.* That concession has not been taken advantage of in many mills. They consume very large quantities.

*Q.* For what purpose ?—*A.* They require it for making caustic soda, Glauber salts, sodium sulphate. They use common salt, and if they get it at a concession rate they could then make a good saving.

*Q.* You suggest that one of the sources of capital for industrial undertakings would be the Postal savings bank deposits, but are you aware that sometimes people take away the money especially if there is a war ? What would then happen to the industries ?—*A.* Only part of the deposits should be utilized. All people won't rush in all of a sudden.

*Q.* What proportion do you suppose could be safely invested ?—*A.* About 20 to 25 per cent. could be safely invested.

*Q.* Will it not affect the confidence of the people in the Postal savings bank ?—*A.* I think it would add to their confidence in the Postal savings banks if Government spent the money in experimental industries.

*Q.* Will not the people know ?—*A.* They may know about it, but that would not shake their confidence in the Government.

*Q.* If they did know, they would cease to have confidence in the savings banks ?—(Witness made no answer.)

*President.*- You say that temple funds should be made over to the representatives of the people for industrial purposes : Who are these representatives of the people ?—*A.* I think some of these institutions might agree as proposals of this kind have been made by some influential societies.

*Q.* Do you seriously propose that Government should undertake legislation to compel insurance companies also to give money for industrial purposes ?—*A.* Yes, a part of their investment.

*Q.* I understand that you want consulting engineers appointed for industrial concerns ; but that they must be only chemists ?—*A.* Yes, chemists or general advisers.

*Q.* You say that, other types of consulting engineers might recommend defective machinery out of partiality towards machinery dealers, so you only want chemists appointed ? We know chemists, chemical engineers, mechanical engineers, electrical engineers, but there is no such thing as general advisers except charlatans and people who want to make money : you had five years training in Japan, you probably know better. Why do you object to a mechanical engineer being appointed in this way, and why do you want chemical engineers only ?—*A.* Because many engineering firms in trying to push their goods forward allow a little commission and the engineers attached to factories in order to earn that commission may advise the use of defective machinery.

*Q.* Perhaps chemists might do the same ?—*A.* They have not to purchase anything of their own, on which they could expect a commission.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* You are the chemical engineer of the Pioneer Alkali Works : What is the capital of the works at present ? Is it a limited concern ?—*A.* Rs. 2 lakhs.

*Q.* All paid up ?—*A.* Not fully paid. It was made a limited concern only two or three months ago. The present capital is only Rs. 60,000.

*Q.* Is there a board of directors ?—*A.* There are directors.

*Q.* Is there any prominent Bombay man on it ?—*A.* I approached some prominent men, but I found it difficult to induce them to join. Mr. A. S. Narielwala is one of the directors.

*Q.* So really speaking you have put up your own capital ?—*A.* I have got the support of many influential people.

*Q.* May I know what part of the country you belong to ?—*A.* I come from Akalkot State. I am a Mahratta.

*Q.* What is the amount of capital paid up ? Rs. 60,000 out of 2 lakhs ?—*A.* Yes.

## WITNESS No. 310.

### MR. H. N. ALLEN, *Principal, College of Engineering, Poona.*

*Mr. H. N. Allen.*

### WRITTEN EVIDENCE.

### *Training of Labour and Supervision.*

**Engineering College Poona.**

The following courses of the College of Engineering, Poona, are intended to assist in the industrial development of the country :—

(*a*) *The Mechanical Apprentice Course.*—This is a three years' course open to youths who have had a fair English education. Rather more than half the time of the apprentices is spent in workshop practice, and a very strong endeavour is being made to give a thorough training in the use of hand and machine tools and in setting up and running prime movers. The remainder of their time is devoted to practical mathematics, mechanics, prime movers workshop appliances, engineering materials, workshop accounts, mechanical drawing and elementary machine design.

(*b*) *The Electrical Apprentice Course.*—This is also a three years' course of the same grade, as that for mechanical apprentices, much of the work being common to the two courses.

(*c*) The Normal Class for the training of teachers for technical schools was established in 1909, as a tentative measure. Selected students, who have been through courses (*a*) or (*b*), spend a fourth year in the workshop where they assist in the teaching of the junior pupils and do more advanced manual work, drawing and prime movers. At the end of this fourth year the students are sent to an outside workshop for one year, receiving a stipend from Government in addition to the small monthly pay given them by their employers. A certificate is granted at the end of this fifth year.

As far as the original object is concerned the course cannot be regarded as very successful. The number of industrial and technical schools in the Presidency is not large, they are managed mainly by Municipal Boards and Missionaries, appointments are mainly governed by local influences, and very few students of the class have obtained posts in such schools.

The so-called Normal Class is now regarded mainly as a class for training young men who will be able to pass the examination for a Second Class Certificate under the Bombay Boiler Act, and so qualify themselves to take charge of steam engines of moderate dimensions and other prime movers. From this point of view the class has been a great success. The thoroughly practical training given in the five years' course, four years in Poona and one in an outside shop, has to a great extent broken down the distaste for manual work, which was at one time a constant source of complaint by employers.

It must be remembered that a large proportion of the students going through this course are Brahmins, that is to say that by tradition and heredity they are far removed from the artisan classes and that, when they first began to take up this line of work, it was mainly those who were not clever enough to pass the University Matriculation Examination, but who wished to obtain some additional schooling, who joined the course. The Brahmins are now doing successful work as engineers in charge of steam engines and other prime movers, which is, I consider, eloquent testimony as to the value of the lines on which the work is being carried out. The main idea involved is to work the pupils in the workshop, as far as possible on the lines of work in commercial shops, teaching them the dignity of labour and pride in good work. At the same time we do not find it advisable to conduct the operations on commercial lines, which would mean a great deal of repetition work, but we think it best to pass the pupils on from exercise to exercise so that they get a good all-round knowledge of tools and processes.

(*d*) In 1915 a further experiment was sanctioned by the Bombay Government, and a certain proportion of those who have been through the three years' courses (*a*) and (*b*) are sent at once to outside workshops, without going through the Normal Class, and are given stipends during two years. The periods of vacation in the three years' courses have been cut down, the extra time thus gained being devoted to workshop practice, so that it is hoped that the men sent out now will be as good workmen at the end of three years as they were formerly after four years (including one year in the Normal Class).

The intention is to compare the products of a four-year course in Poona, with one year in an outside shop, with those of a three-year course in Poona, with two years in an outside shop.

(*e*) A new engineering laboratory has just been completed and provided with a thoroughly first class equipment of prime movers and testing machines. The Hydraulic section will also be very complete. This has enabled us to start a course in Mechanical Engineering, leading to the degree of B.E. Mechanical in the Bombay University. The course is at present a three-year one, but the University is now considering the lengthening of the course to four years to enable a larger amount of practical work, including workshop practice, to be done. This, and corresponding changes in the Civil Engineering courses, will necessitate a considerable amount of additional accommodation in workshops, lecture rooms, laboratory and drawing hall, as well as additional teaching staff. The various questions involved are being carefully gone into, but the fact that considerable extra expenditure will be required will mean delay until the conclusion of the war.

It is hoped in this course that it will be possible to train thoroughly practical men with good theoretical knowledge, who will be able to do first class work in the higher branches of Mechanical Engineering. They will of course require outside workshop training before they can be regarded as competent, but there is no doubt that this can be arranged for.

(*f*) The other courses in the college are in Civil Engineering, and do not need to be remarked on here.

Industrial and technical schools.

For a long period the inspection of all industrial and technical schools in the Bombay Presidency, except the cotton weaving department, was done by the Professor of Mechanical Engineering of this College, assisted by other members of the staff. The Inspector's reports were forwarded through the Principal's office to the Director of Public Instruction, and thus for a short period I was able to get an idea of what was being done in these schools. When the control of this work was vested in the Committee of Direction for Technical Education, the Principal of the College of Engineering was appointed as a member of this Committee, so that I have continued to some extent to be in touch with this kind of education. The impression I have gained is that in many of these schools the majority of the pupils do not belong to the craftsmen castes, but are Brahmins, who do not continue in manual work after they have left school. Many of the schools do not teach much besides carpentry and cabinet making, and, for those of them that have been founded in country towns, there is probably not much opening for anything beyond this.

The war has interfered with any extensions or experiments, which might have been carried out by the Committee of Direction; but I believe there is a feeling that, as soon as possible, encouragement should be given to schools for half-timers in mills and workshops, where instruction would be given, as far as possible, on technical lines; the practical training being given in the mill or workshop. This would of course need interested co-operation on the part of managers and foremen, if the best results were to be obtained. The tendency is of course to put a boy on to some definite job and keep him there, as in this way his services soon have a money value, which is hardly the case if he is moved from department to department, so as to obtain a general knowledge of the work done in the mill or workshop. It is possible that, for many operatives, a thorough training in one particular line, with a certain amount of elementary education in reading, writing and arithmetic, as applied to their special job, is all that will be required; but brighter boys should have the chance of getting a more extended knowledge of the business and developing into all-round workmen. Such boys should continue their school course and should be taught mechanics and mechanical drawing. I should be inclined to include courses in Civics and elementary Hygiene.

Under Indian conditions I am not inclined to recommend the founding of evening schools for full-time workers, as I doubt whether boys could study properly after a long day's work in the Indian climate.

The G. I. P. Railway is making an experiment in the training of apprentices, working half time in the shops and half time in school, which I hope will be continued and will be very successful.

Full-time industrial schools should be worked as far as possible on workshop lines, every endeavour being made to produce energetic workmen who will be useful in outside workshops when they leave school; but who will recognize that, for a long time, their value to their employers is less than that of boys who have been trained in the shops. The success on these lines gained in the apprentice classes of the College of Engineering, Poona, makes one very hopeful of what may be done in vernacular schools dealing with younger boys recruited from the labouring classes, if competent and enthusiastic teachers can be provided, men who can work themselves and are not above working with their pupils. Whether the schools should actually work on commercial lines, and endeavour to make a profit on articles made by the boys, is, in my opinion, a little doubtful, and, in any case, must depend on circumstances. It certainly does not appear advisable, where the boys are to be trained as engineering mechanics and fitters, with a view to qualifying as foremen later on. In this case an all-round knowledge of tools and processes is certainly to be aimed at.

Control of school

I consider the present arrangements for the control of industrial and technical schools in the Bombay Presidency to be satisfactory, though I hope that after the war it will be possible to appoint full-time inspectors and largely develop this branch of education.

Training of supervisors and managers.

As regards the measures necessary for the training of supervisors and managers, I am of opinion that the present provision in this Presidency should be sufficient if the work is carried on along correct lines. We have the course in this college for young men of superior education leading to a degree of the Bombay University. If this training is carried on along the right lines, and these young men go out to work in the right spirit, recognizing that they still have everything to learn as to the way a modern business is carried on, and that the only way to learn is to begin at the bottom and work up, they will, I believe, prove useful in all sorts of branches of industry in addition to those for which they have been specially trained. Next come the Victoria Jubilee Technical Institute in Bombay, dealing with young men of a lower grade of educational preparation and giving courses in Mechanical and Electrical Engineering, cotton spinning and weaving, etc.; the apprentice courses of the College of Engineering, Poona, with a rather lower entrance qualification, but working along somewhat similar lines and several other technical schools, in different parts of the Presidency. The experiment of the G. I. P. Railway may again be referred to in this connection.

Training abroad.

The problems connected with the training of Indians in foreign countries are very difficult. Wherever possible I consider a full training should be given in India. Employers will have to do their part, and I believe they will find that young men trained along the right lines in India will prove more amenable and easier to deal with than those who, having spent a considerable amount of money in foreign work and study, have perhaps obtained an exaggerated opinion of their own ability and importance. At the same time I should add that the only Indian I have a personal acquaintance with, who has had a foreign technical training (in Electrical Engineering in the United States), has done very excellent work since his return to this country and is now a successful teacher of this subject in the College of Engineering, Poona.

### *Technical Aid to Industries.*

Testing and research.

The materials testing section in the new engineering laboratory is well equipped and has been doing testing work for the Public Works Department in connection with munitions, and, to some extent, for private firms. Considerable expansion of this work is possible, should there be a demand for it, and a regular materials testing bureau could easily be established.

Geological problems are sometimes submitted to this college by Government and by private individuals, but these are not numerous, as the geology of the Bombay Presidency is simple and, except for manganese, there is no large mineral industry.

I hope that the Mechanical Engineering Laboratory will be encouraged to undertake technical research work along suitable lines, will be provided from time to time with the necessary facilities for special work and that any provincial department of industries which may be established will be able to make use of the facilities provided here. At present or in the near future, the college will be able to take up questions regarding prime movers, refrigeration, hydraulics, lubricants, limes and cements, timbers, masonry, reinforced concrete, new building materials, strength of materials generally, besides metallography and analysis of materials.

No doubt some provision will be needed to avoid unnecessary reduplication of work at different places in India, but I consider that as far as possible there should be local freedom.

The Civil Engineering Department is also ready to undertake research work both for the Public Works Department and for private firms. Definite rules will have to be laid down as to payment of fees and publication of results if this branch of college activity develops as is expected.

Should a Department of Industry be created for the Bombay Presidency it should be in communication with the various centres in the Presidency where industrial research is possible, including the Victoria Jubilee Technical Institute, the College of Agriculture, the Ranade Institute, Poona, the Gujerat College and the new Science Institute in Bombay. It should be able to judge of the possibility of a particular research being carried on satisfactorily in one of these institutions, and in cases of difficulty should consult the Imperial Department as to the facilities available elsewhere in India.

It is suggested that facilities should be granted by Government to experts employed in educational posts, who are willing to undertake research work, to travel about visiting suitable engineering works and factories during vacations, receiving travelling allowance, and getting into touch with manufacturers and engineers.

Reference library required.

A good engineering reference library for the Presidency is badly needed. One of the greatest obstacles to research in India is the practical impossibility of finding out quickly and easily what has been done on any subject, especially what has been done recently. Each institution should have a good reference library dealing with its special subjects, but in addition, there should be a really good general scientific, industrial and engineering reference library in Bombay which should be kept up-to-date. It should be supplied monthly with all the latest publications by a body or bodies in Great Britain, which are in touch with research and with the latest industrial and engineering developments, such as the Advisory Council of Research.

( *Mr. Allen did not give oral evidence.* )

---

## WITNESS No. 311.

*Mr. W. M. Schutte.*

## MR. W. M. SCHUTTE, *Agricultural Engineer to the Government of Bombay.*

### WRITTEN EVIDENCE.

### *Financial Aid to Industrial Enterprises.*

Supply of machinery on the hire-purchase system.

I am of opinion that the supply of machinery, especially power pumping plants, on the hire-purchase system would be a veritable boon to hundreds of cultivators. The system hitherto has been for the cultivator to apply for *tagai* loan but this takes some considerable time, and if the pumping plants amount to Rs. 5,000, the matter has to be placed before the Commissioner, whereas if the machinery could be had on the hire-purchase system much time would be saved and many more plants would be sold. I have repeatedly been requested to supply machinery on the hire-purchase system, but as I have no authority from Government to do so such requests have had to be refused.

### *Technical Aid to Industries.*

Benefits to agriculture from Government research.

There is absolutely no doubt that the cultivators have derived benefit as the result of Government demonstrations and research, especially with regard to agriculture. This applies principally, so far as my personal knowledge is concerned, to power pumping, cane crushing, boring, and mechanical cultivation. Where cultivators have taken advantage of the demonstrations given, the result has been a simpler method of lift irrigation, a higher percentage of extraction in cane crushing, additional water in the wells, and an increase in the rental values of their lands as the result of mechanical cultivation.

Value of consulti engineers appointe by Government.

My position for the last four years has been Consulting Engineer for the express benefit of the cultivators, and during this period I and my staff have been fully occupied in supplying plans and estimates for power plants. I have also purchased machinery and erected and tested the same for agricultural purposes. The cultivators who have had work done in this way have paid the amount into my official account and when the work is completed a statement is prepared and the matter settled up. Those having private means provided the money themselves, but in most cases I have recommended them to the Collector for *tagai* advance.

To prevent cultivators fixing unsuitable machinery the Collectors will not advance *tagai* loan unless I approve of the scheme. By this I mean that the scheme should be well thought out from an engineering point of view, more particularly that the best type of plant should be selected to suit the conditions concerned, and I am pleased to say that many failures have been averted in this way, as I am authorized by Government to visit each site if necessary and tell the owner exactly what to do to ensure success.

Training of labour.

In reply to training of labour and supervision, I venture to think that before any great advance can be made industrially in India it will be necessary to have many hundreds more of skilled artisans. In my own department I find that it is not so much the certificated theoretical man that is required as the working engineer, or what is known in England as the fitter—a man who knows the practical part only.

To overcome this difficulty in my department a workshop has been erected in which general repairs are executed in connection with power plants and where men are trained in simple fitting and engine driving. The results are not brilliant but we have made a good start, and men who formerly were coolies are now useful artisans and of the particular kind we require most for the erection of power plants for agricultural purposes.

(*Mr. Schutte did not give oral evidence.*)

## WITNESS NO. 312.

Mr. N R. Kembhav

MR. N. R. KEMBHAVI, *Managing Agent, the Mahalaxmi Ginning, Oil, Paint and Varnish Manufacturing Company, Bijapur.*

POINTS CONSIDERED ARE—

I.—Capital, Government help, some remarks about my industry and experience, banks or financial agencies, co-operative principles in industries.

II.—(*a*) Industrial education, district industrial schools, objects, kind of education, free education, its expenses, sources of income, examinations, certificate, who should be the examiners, board of directors, scholarships.

(*b*) Technical and science colleges, objects, subjects, expenses, sources of income, examinations, diplomas, apprenticeship.

III.—(*a*) District industrial bureaus, objects, officer, name. Economic Superintendent, his qualifications, method of works, diary writing, controlling board, field of selections for membership, expenses, how to meet them, remuneration, advantages of enforcing such men into factories, physical fitness.

(*b*) Director of Industries and Commerce, objects, qualifications, his pay, head office staff, tour, travelling expenses.

IV.—Industrial exhibitions, in Presidency towns, in district towns, demonstrations, lectures, expenses, how to defray them.

Capital

I.—Generally speaking our Indian capital is shy. But this tendency of the public mind is undergoing a change. Now-a-days it is not so very difficult, as it was 20 years ago, to collect a few lakhs for every district for an industrial enterprise provided its success is brought home to the people. Their idea of assurance, in ninety cases out of a hundred, is that Government should guarantee interest on the investment. Indian capitalists do not know much about industries. Naturally, therefore, what they are most anxious about is whether their money is in a safe investment. This is the case with such capitalists as are not dependent for their living upon the interest they derive on their investment. But those that are very anxious to make money only by collecting interest do their best to obtain the maximum rate of interest with the minimum of risk.

Government assistance.

But be this as it may, there will be no very great dearth of capital, if the following three factors are the most prominent features of an industrial enterprise. First, the originators of an enterprise should command the confidence of the public. Secondly, the margin of profit should be wide enough to induce capitalists to invest their money. Thirdly, there should be Government help, in the form of (1) a loan with nominal rate of interest, or (2) the supply of machinery and plant on the hire-purchase system ; or (3) guaranteed dividends for a limited period ; or (4) provision of part of share capital on the same basis as public subscriptions of capital ; or (5) guaranteed Government purchase of products ; or (6) exemption for a limited period of the profits from income tax and exemption from any tax on the industry or any article, used in the industry. Which is the best and most suitable of these cannot be said. This depends upon the particular industry.

As regards my own oil, paint and varnish manufacturing industries, I do not want Government to guarantee interest or dividend, neither do I want their money at more than 4 per cent. per annum. The help which Government should give is assistance in securing skilled labour, capital at a nominal rate of interest, expert advice when necessary, preferential Government purchase of my finished articles for a limited period (at least for paints and varnish manufacturing industry). The purely oil pressing industry in India is so very peculiar that all these forms of Government help are useless as the market for oil and oil seed is constantly changing since all the oil that is pressed out is only consumed in India for edible purposes. We grow more oil seeds than there is market for the oil since the latter is required only for edible purposes. The oil manufacturing industry will only thrive well when finished articles are made out of oil. India grows, on an extensive scale, a variety of oil seeds, and if some of the oil seeds are not exported out of the country, no better price or greater demand is obtained for oils the seeds of which are usually retained in the country. Take, for instance, groundnut seed. If the seed does not find its way out of the country, the other oils, namely, *karadi* or safflower or *til* oil will have to be sold also cheaper in proportion to the groundnut seed oil despite the fact that *karadi* or safflower or *til* seeds are not available so plentifully as to make their crushing paying. Here I am of opinion that Government have very little scope in contributing their share in order to make the oil pressing industry a success except by bringing about conditions which will contribute to making labour intelligent. To improve this, I have stated elsewhere. It is also a fact that for want of skilled labour manufacturing expenses go quite beyond our calculations. Why Americans should be able to export thousands of tons of oils to Europe, and we Indians, having the advantage of growing so many varieties of oil seeds on a scale on which no one country or group of countries can grow, should be content with only exporting oil seeds, allowing all the profit of manufacturing oils and the products made from the oils to go into the pockets of other nations. Evidently because oil seeds are exported instead of oils. If, therefore, some arrangements are made to export oil, the oil industry will have, within a short period, a very encouraging tale to tell. Another way of improving the oil industry is to develop allied industries, namely, soap making, glycerine, Turkey red oil, paints, varnishes, linoleum, printing inks, artificial rubber, etc. These are all chemical industries and their success depends upon various other factors among which chemicals play a very important part. For instance in my paint and varnish manufacturing industry I have to depend upon driers of European countries, the price of which has gone up to a fabulous extent. All the European countries have been in advance in these industries, and, naturally, we shall not be able to manufacture our articles so nicely as these countries do. Therefore in the nascent condition of the industry, it is impossible to do without Government help which they can render us until our goods can compete on equal terms with the articles of other nations. There is no Government expert when difficulties arise during the course of manufacture, nor facilities to make experiments. There are no railway facilities to send the finished articles from our place to places where our produce will be sold, while other countries, situated thousands of miles away, dump these markets with their goods at much less expense than what we, situated so near, can do ourselves. The Government district officers care very little about what economic products the part of the country they are touring in possesses, neither are they willing to take the trouble of inquiring into these matters when some information is supplied to them. I wrote to the mamlatdars of some talukas of my district where I came to know that there were raw materials for my paint factory. Out of these, only one mamlatdar cared to reply to my letters, and was kind enough to send me some samples. I saw the Collector and requested him to let me know whether he would write to the mamlatdars to send samples of ochres or coloured earths, or make inquiries on these points. His reply was not a bit encouraging. Therefore, there ought to be some special Government officer of whom I speak elsewhere. This is my experience and I place it before the Commission not as a complaint but as my experience, since I have been asked to do so. One more point I have to place before the Commission, and it is this, that income tax is being collected as rigorously as it is assessed on the supposed or imagined profits we make. We might have made some profits for the second year with a big loss for the first year, but no time and scope is given by the local Government officers in collecting all kinds of taxes to prepare ourselves for unforeseen difficulties which are bound to arise in the case of new industries, or to take some risks in adding other new things with the object of making the existing one paying, or building some new industries. To repeat concisely what kind of help Government should be given :—

(1) Skilled labour.
(2) Expert advice.
(3) Loans without interest or at a moderate rate of interest.
(4) Exemption of new industries from Government taxes for some time.
(5) Providing a district bureau with a district officer only for industries and commerce. I have written elsewhere at some length about this officer.
(6) Preferential Government purchase of products for a limited period.
(7) Cheapening railway freight rates.

Financing agencies

Financing agencies or, in other words, banks are the sinews of industries and commerce. The healthier they are, the stronger are industries and commerce. Government should encourage starting District Banks, of course with all the restrictions and safeguards protecting Government money that will flow through these banks. Such Government-aided banks carry confidence in the minds of the people of the districts. More money will be deposited with such banks. This brings more money into circulation which will go to cheapen the rate of interest for sound credit. Then only the backs of these money-lenders will be broken whose usual rate of interest against gold securities is from 12 to 24 per cent. per annum. It should be made known to such banks that it is one of their duties to foster industries and not to get fat themselves at the cost of these poor industries.

## *II.—Industrial Education.*

Object.

Every district should have a technical school. The primary object of such schools should be to train up labour, mukadams and fitters and the indispensable subordinate, on whom the quality and quantity of outturn depends. If industries are to be improved efforts should be made to improve these men; and it is better done firstly through such schools.

Subjects to be taught in such a school should be reading, writing and simple arithmetic to those students who do not know them (this trouble disappears if Government adopt free and compulsory education), carpentry, simple geometry, smithy, drawing, simple chemistry, physics with experiments, book-keeping, business habits, namely punctuality and discipline.

Free education.

Education should be made free in this institution as boys of poor men would only be coming to attend. It should be in no way a bar for poor men to send their sons but should be a distinct source of improving the lot of the sons of the poor people.

Expenses.

Its expenses should be borne by Government, Local Boards and the Municipalities of the district. The course should be three to four years. Every year examinations should be held and certificates should be awarded. The examiners should be from the higher staff of the local mills or factories. These examiners should be appointed by the District Local Board for Industries and Commerce. The object of appointing men of the industries of the same district is that they would train the boys of the school to their requirements. The prominent industry of the district should form an integral part in the curriculum of the district industrial school. The greater the district and the greater the industries of the district, the greater and wider would be the scope of education of this school. There should be a number of scholarships ranging from Rs. 5 to Rs. 20 per month. These boys who show special aptitude for higher industrial education should be sent up to the Presidency Technical Science College with scholarships. All the factories or mills of the district should make it a rule to employ immediately boys coming out of this school with certificates. Some engineers, managers and the District Economic Superintendent of Local Industries should be the prominent members of the managing board of this school. If differences of opinion arise between the District Local Board for Industries and Commerce and the managing board, they should be referred to the Director of Industries and Commerce, whose decision should be final. The Director of Industry and Commerce should inspect these schools at least once a year.

Presidency Technic and Science Colleg

It should be on the same principle as the district Technical Institute. Its curriculum should have reference to the industries of the Presidency and it should have arrangements for research and specialization. It should have residential quarters for students and professors. It should be recognised by the University of the Presidency, which should issue degrees as it does for arts colleges. It should be kept up to date in the branches of industries for which the Presidency is known and has possibilities of developing in the near future. Thus each district and each Presidency will develop its strong points to a very high standard of perfection.

## *III.—District Industrial Bureaus.*

For every district there should be an industrial bureau. Its main object should be to disseminate industrial education amongst the people of the district, and to collect all possible information about industries that are found to have possibilities of success in that district. It should have a permanent officer. He should be called District Economic Superintendent or some such suitable name. He should be a degree holder from the Technical and Science College of the Presidency. This officer should have put in two years' apprenticeship or service in an industrial concern. This is as indispensable a qualification as the degree he holds. By forcing such graduates to work in the actual process of manufacturing, there are two advantages. The factory or industry which gets such an educated man to work will have an opportunity to develop the industry on a scientific basis. The student will have ample opportunity of gaining practical experience in working out his theoretical knowledge. He also requires the physical fitness necessary for this work which he will develop while actually working in a factory. When he will be drawing out schemes for industrial possibilities of a district, he will have in mind the practical difficulties of the actual process of manufacture. He should be touring in the district for eight months and should settle in the monsoon at headquarters, which should be decided according to industrial importance. He should keep an exhaustive diary. He should make an industrial survey of every part of the district. There should be a Local Board for Industries and Commerce for each district. He should work under the auspices of this board. The Collector or such Government officer as Government may appoint should be the President of this board. On this board there should be a representative from the Municipalities of the district, two from the Local Boards; and the rest should be appointed by Government, and they should be men of business, and wealthy men of the district who take an interest or part in industries. Including the President the number of the members of the board should be from 10 to 12. It should meet on every urgent work which should be notified by the Economic Superintendent in consultation with the President. Every month the diaries of the Economic Superintendent should be sent round for the perusal of the members. If any member wants to discuss some of the points in the diary, he should notify the Superintendent who should place the matter before the Committee, which should be held at every three months. His pay should not be less than Rs. 200 per month. His post should be considered a Government post. His appointment should be made by Government. He should be subordinate to the "District Local Board for Industries and Commerce" and the Director of Industries and Commerce. His promotion should be in proportion to the industries he promotes. The new industries he promotes should be made to contribute something towards his increase of pay or should be made to pay some reward. This should be settled by the Director of Industries and Commerce.

### *Director of Industries and Commerce.*

There should be a Director for Industries and Commerce for each Presidency. He must not necessarily be a civilian. But preference may be given to a civilian if he has an exceptionally good knowledge of industries, having studied science during his University career. The appointment might be given to the head of a big industrial concern which is worked successfully. The salary of this post should not be less than Rs. 2,000 per month. The Director should have his office fully equipped to cope with the work. He should visit every district of the Presidency once a year, inspecting all that concerns industries and commerce. Another qualification is that he should personally have seen other countries and studied a great deal about their industries and commerce. He must be in touch with all the British Consuls staying in other countries.

**Industrial exhibitions.**

An annual industrial exhibition should be held at a centre of industrial and commercial importance, and small industrial exhibitions for every district on public fair days, such as Dasara or Diwali or Sankratra. These exhibitions should be restricted to local manufactures Foreign exhibits should be admitted if there is some possibility of them being manufactured locally.

### ORAL EVIDENCE, 20TH NOVEMBER 1917.

*Mr. C. E. Low.*—*Q.* Are you selling any of your products at present to Government?—*A.* No, not at all.

*Q.* Have you made any tenders or offers?—*A.* I have made some tenders.

*Q.* To whom?—*A.* To the Executive Engineer of the district for paints and varnishes.

*Q.* You have not put any proposals before the Munitions Board?—*A.* No.

*Q.* How long have you been working this factory?—*A.* The oil mill has been working for the last four years: we have just put up the plant for paint and varnish, about two months back.

*Q.* Where did you get your paint manufacturing machinery from?—*A.* There was one in Bombay, and I bought it and took it over to my mill and put it there.

*Q.* What oils do you crush?—*A.* Safflower, linseed and groundnut.

*Q.* Do you offer to sell your linseed oil in India by making tenders to Government officers and the cotton mills?—*A.* Only to a limited extent.

*Q.* How long have you been crushing linseed oil?—*A.* For a couple of months.

*Q.* Before that, what oil were you making?—*A.* *Kusumba* oil.

*Q.* That was sold locally?—*A.* It was sold in Bombay, Dharwar, Berar, Bangalore and Madras.

*Q*. What happens to your cake at present ?—*A*. We sell it to the Government dairies nd the Supply and Transport Department and we supply to Government farms.

*Q*. That is decorticated ?—*A*. We follow the decorticating method : if it is not decor-icated, it is not sold.

*Q*. Cannot you sell undecorticated cake ? —*A*. No, because it contains only 4 per cent. itrogen.

*Q*. Do you test your productions by any analysis ?—*A*. We get our cakes sometimes ested locally and also by Dr. Mann.

*Q*. I mean when you purify your oil.—*A*. We only filter the oil. There is no necessity f purifying oils in India, at any rate so far as my oil is concerned.

*Q*. Don't you use it for paints?—*A*. I have not used it for paints. We are using linseed il for paints. My idea is to convert this *kusumba* oil into a drying oil by using a higher ercentage of driers.

*Q*. Is yours a limited liability concern ?—*A*. Mine is a private concern.

*Q*. You say it is a manufacturing company ?—*A*. It has only six partners, it is not a mited concern, it is not a registered concern.

*Q*. With your own capital ?—*A*. Our own capital.

*Q*. What experience have you had before undertaking this business ?—*A*. I was a tudent for six years studying this industry in Professor Gajjar's Laboratory and afterwards served here in two or three factories in India, and after that I started my own concern.

*Q*. Do you suppose you would be able to sell all your cake in India ?—*A*. That was he case before the war : I used to supply some European firms for exporting : nowadays they on't buy. I have got to depend on the home market so far as *kusumba* oil-cake is concerned. s far as groundnut cake is concerned it is very difficult to sell it locally.

*Q*. Have you had any help from the Agricultural Department in popularising the se of these cakes ? *A*. Some as far as manure is concerned, but it is much harder than *til* ake. Of course it is nutritive just as any other cake.

*Q*. You didn't apply to the Agricultural Department, for instance, to give a emonstration ?—*A*. I gave samples to the Government dairies, but they would rather give reference to cotton seed cake.

*Q*. Have you any complaints regarding railway freights ?—*A*. I do not export my own il. There are merchants who buy my oil in my own factory and send it to the different narkets. Hence I do not feel any actual difficulty as far as *kusumba* oil is concerned.

*Q*. Did you make any attempt to export oil direct before the war ?—*A*. No.

*Q*. You are complaining of the difficulty you find in getting some mineral colouring naterials : I suppose you mean things like ochres ?—*A*. Yes, ochres, red ochres, also yellow ochres.

*Q*. Did you ever apply to the Geological Survey Department for assistance in the matter ? —*A*. No, I only approached the Collector of my district.

*Q*. They are rather amateurish in the matter, one ought to try the Geological Depart-nent.—*A*. I thought the mamlatdar being in close touch with every village of the district n his tour might be expected to know something about these products.

*Q*. The Geological Department will probably tell you in what localities such things re likely to occur, then you could ask your local officers to help.—*A*. I have not done so as et.

*Q*. The Geological Department are very anxious to help in these matters.—*A*. I will lo so.

*Hon'ble Sir Fazulbhoy Currimbhoy*.—*Q*. In the third paragraph of your written evidence ou say, "The help which Government should give is assistance in securing skilled labour, apital at a nominal rate of interest"; how can Government secure skilled labour by stablishing technical schools ?—*A*. That is what I mean.

*Q*. About linseed oil, have you ever tried to export this oil ?—*A*. No.

*Q*. Do you get your oil tested before export ?—*A*. It is tested by Dr. Mann.

*Q*. How does it compare with the foreign brands ?—*A*. He says it is as good as the English oil.

*Q*. As purified ?—*A*. There is no necessity of purifying the oil. It is only filtered nd it is then as good as the English oil.

*Q*. At what rate do you sell, and at how much less than the other oil ?—*A*. Eight nnas per cwt.

*Q.* What is the price now?—*A.* It is Rs. 19-8-0 for boiled oil per five-gallon drum, that is the Bombay quotation.

*Q.* Yours is Rs. 19 only?—*A.* Yes.

*Q.* With drum?—*A.* Yes.

*Q.* You are selling only at eight annas less? Cannot you possibly sell at less than that price and compete with foreign oil?—*A.* I should then make less profit.

*Q.* But if you want to introduce your goods into the market, you will have to sell cheaper?—*A.* There is some limit. I shall have to cut short the margin of profit.

*Q.* But when you want to get a market.—*A.* I shall have to do it.

*Q.* Are you producing any large quantity? Are you making any addition to your factory?—*A.* At present I cannot.

*Q.* What is your capital?—*A.* One lakh of rupees.

*Q.* Are there other partners?—*A.* Yes.

*Q.* Are they also experienced men?—*A.* No, I am the only experienced partner.

*Q.* They are only capitalists?—*A.* Yes.

*Q.* When you say Government ought to give money at a very cheap rate, what rate have you in mind? What rate do your partners charge?—*A.* They charge six per cent.

*Q.* You say that Government should encourage the starting of district banks: by that do you mean branches of Presidency Banks?—*A.* I mean industrial banks.

*Q.* What bank have you at Bijapur?—*A.* We have started a bank.

*Q.* Is it a co-operative concern?—*A.* It is a limited liability concern.

*Q.* You are the agents?—*A.* Yes.

*Q.* You charge your own commission?—*A.* Yes.

*Q.* On the profits?—*A.* On the profits only. We take our share in the profits and it is passed to our credit.

*Q.* What is your capital?—*A.* Rs. 5 lakhs.

*Q.* Every year you publish the accounts?—*A.* Yes, it is a limited concern.

*Q.* Whom do you lend your money to?—*A.* To the native merchants.

*Q.* What is the value of a share at present?—*A.* It is at par.

*Q.* What is the par value of each share?—*A.* Rupees 50 per share.

*Q.* Don't you think that in a district if you give shares of small amounts many of the middle classes and the poorer classes would be able to take shares?—*A.* I thought Rs 250 would be a sufficiently small share.

*Q.* Whom are these banks financing? Are they financing small industries?—*A.* Not small industries.

*Q.* Because there is some risk of not getting your money back?—*A.* We do not want to risk.

*Q.* You advance just like shroffs?—*A.* To a certain extent and also to the merchants during wheat, linseed and other seasons and advance them against these things.

*Q.* You think that the credit of the people in the districts is not so good and so you are not lending them, and want the Government to start district banks and lend money to these people?—*A.* If these industrial banks are started and they make it their business to examine the working of these industries, then only you can advance money.

*Q.* You ought to know better because you are the men in the district, whether you can advance money to a certain industrial concern or not?—*A.* We have no superfluous capital to advance.

*Q.* But instead of advancing to merchants on their goods like cotton, if you can advance money to the industries, you can help them much and also get better interest?—*A.* We look at the matter in this way: If there is a merchant and if there is a poor industrialist, we rather prefer the rich merchant.

*Q.* Because your money is safe? You want the Government to advance money where it will not be safe?—*A.* The position of a private bank is quite different from the position of a bank which is started by the Government.

*Q.* That is, they can afford to risk money?—*A.* They should: they are in a position to risk it: we cannot afford to risk anything.

*Q.* While Government can?—*A.* Government can put some pressure and they can get back the money in some way or other.

*Q.* You can also do the same?—*A.* We have not time enough, and we have no experts to examine the prospects of industries.

*Q.* Do you think that in the districts people will deposit money with the industrial bank ? —*A.* Yes.

*Q.* But I suppose small depositors generally prefer the savings banks ?—*A.* I think if the Government would guarantee the interest, more deposits will come in.

*Q.* In your written evidence you speak of the Director of Industries and Commerce and you say "the salary of this post should not be less than Rs. 2,000 per month. The Director should have his office fully equipped to cope with the work. He should visit every district of the Presidency. Another qualification is that he should personally have seen other countries and studied a great deal about their industries and commerce". Don't you think if you want a Director with these qualifications, you should have a special man sent out by the Government to different places to study all about the industries ?—*A.* Yes.

*Q.* And then he should be made Director ?—*A.* Yes.

*Sir F. H. Stewart.*—*Q.* You used to export oil-cake before the war ?—*A.* Yes.

*Q.* And it is owing to the war that the demand has stopped, but it will probably revive again after the war ?—*A.* It may perhaps.

*Q.* And you contemplate doing export trade as well as developing the trade in the country ?—*A.* If I can get a good market locally, so far so good, but the chances are that we will have to do both.

*Q.* You want the export trade to continue as well ?—*A.* If there is no home market, I shall have to depend upon export.

*Q.* What cake do you manufacture ?—*A.* *Kusumba*, groundnut and linseed.

*Q.* There is no export market for the *kusumba* cake ?—*A.* No, linseed and groundnut cakes are exported.

*Q.* Do you make your own freight arrangements ?—*A.* No, we do not sell ourselves, we sell it to the European firms here.

*Q.* You don't find any difficulties about freight or anything of the sort ?—*A.* I do not know.

*Q.* Do you think that the introduction of certificates of quality would help you to dispose of your products ?—*A.* Yes, to a certain extent it will help.

*Q.* Do you think it would be advisable from the point of view of the trade generally ? Would it help the trade ?—*A.* It would.

*Q.* Would you have them compulsory or you would have them voluntary ?—*A.* Voluntary.

*Q.* You referred to a bank which you helped to start in Bijapur ?—*A.* Yes.

*Q.* What is your position there ?—*A.* We are the agents of the bank.

*Q.* Have you put in your own capital ?—*A.* Some, and we are also the agents.

*Q.* About your suggested District Economic Superintendent, are you proposing that he should have a fixed pay, or that he should get a commission as well ?—*A.* He should get a fixed pay. The success or failure of new concerns is uncertain. Suppose he is not able to start a new industry, the poor man will not get anything : so he must get something monthly.

*Q.* Over and above that, if he starts and encourages a successful industry, you would give him more ?—*A.* You should give him Rs 200 a month, and if he helps in starting a new industry, you should give him a reward according to the nature of the industry.

*Q.* Do you think you could easily get a man capable of fulfilling these difficult duties ?—*A.* Not for the present, there are very few now like that.

*Mr. G. A. Thomas.*—*Q.* You say that the District Economic Superintendent should be a degree holder from the Technical Science College of the Presidency ; that he should have served two years' apprenticeship in an industrial concern ; he should have knowledge of minerals, knowledge of vegetables, and knowledge of factories, and thus have knowledge of everything ?—*A.* Let me make my meaning clear on that point. When he is the holder of a science degree he will usually possess some knowledge of botany and some knowledge of mineralogy. After he has obtained his degree, he will have to spend one or two years in a factory in manufacturing particular articles, so that he will know the practical difficulties of manufacturing a thing.

*Q.* He will have a smattering of everything ?—*A.* Yes, just like a B.Sc., as you find in the Bombay University. He knows something about all these things.

*Q.* But expert in nothing ? But don't you think that the Director of Industries should have these experts, one man expert in minerals, another in geology, and so on, each attending to one particular department ?—*A.* It would be too costly for Government to maintain an expert staff for each district when the industrial resources are not known.

*Q.* But if you have experts at all, we should have men who are really worth something ?—*A.* There would be an expert for the Presidency, and if this Economic Superintendent were to collect facts and figures, the research would be made by the expert, that is my point.

*Q.* What is this man to inspect the factories for ?—*A.* Because he is a man who is very much interested in the local industries. He could occasionally visit particular industries and aks how they are doing and so on, and he will be in a position to guide them to a certain extent with his theoretical knowledge.

*Q.* After his two years' experience ?—(Witness made no answer.)

*Q.* I do not quite follow your proposal regarding income tax : do you think that if an industry fails in one year, income tax should not be collected the following year ?—*A.* In order to make an industry paying, we join some other industries which are expected to pay for the time being, and income tax is collected on the profit we make for that one year, but if we tell the collector that there was a loss the previous year, he does not allow us to deduct from the profit to make good the loss and then charge income tax on the balance of the profit. What he says is that he has nothing to do with the previous year's loss. He does not allow the loss to be taken out from the profit of the year under consideration. That is what is not good.

*Q.* I still do not follow : if you do not make a profit do you pay any income tax ?—*A.* But the income tax has already been collected for the year. So, some concession ought to be shown to these new industries. If a profit is made for this year, and if there is a big loss for the second year, we have no time to recoup whatever amount we have paid as income tax. It is paid for good.

*Q.* What arrangement do you suggest should be made for exporting oil. You say "if therefore some arrangements are made to export oil the oil industry will within a very short period have an encouraging tale to tell." What arrangements should be made, and by whom ?—*A.* I have not got correct knowledge of that, we read in books that oil is exported from America to Europe, but that practically no oil is exported from India to other countries, but only oil seeds.

*Q.* How is that ?—*A.* I had a discussion with the manager of a big concern in Bombay ; he told me that in this city people do not export oil.

*Q.* Do you know why : you have not studied that question ?—*A.* They do not get good prices.

*Q.* Do you suggest there should be an export duty upon oil seed ?—*A.* If you place an embargo upon the export of oil seeds, naturally people would try to manufacture oil here.

*Q.* You mean they should impose an export duty on oil seeds in order to encourage the export of oil ?—*A.* Yes.

## WITNESS No. 313.

Mr. Cecil L. Burns.

### MR. CECIL L. BURNS, *Principal, Sir J. J. School of Art, Bombay.*

### WRITTEN EVIDENCE.

### *Schools of Art.*

Their relation to industries.

The field of activity of a modern School of Art is a wide one ; but it may be broadly divided into two sections. The first is that of fine art, which comprises the study of the works of the great artists of the past ; inquiry into the spirit which inspired them, the principles upon which their masterpieces were executed, and the technical means by which the characteristic effects in each work were produced. To this must be added the training of the student to appreciate the beautiful in abstract forms and in nature, and the education of his eye and hand to express this appreciation through the medium of architecture, painting or sculpture. Here the useful is entirely subordinate to the beautiful. In the second section, the main subject of study is the art of design and its application to industry ; the dissection and analysis of pattern, and investigation into the limits imposed upon the designer by the technical processes employed in different crafts and trades. Here the useful is the basis of study and the application of beauty to the useful its purpose. The objects of the two sections differ in degree rather than direction. The arts of the architect, painter or sculptor are merely developments of the crafts of the builder, designer and carver and their separation in modern times is purely artificial. How this separation was brought about is outside the scope of comment or inquiry in this written statement ; it is sufficient to note that it exists despite the strenuous efforts of modern reformers to link up the broken chain. It is necessary to take prefatory notice of this separation in order to make it perfectly clear that in the following observations the activities of the schools of art in India are considered solely in their relation to the industries of the country and not to the study of the fine arts.

**The artistic industries of India.**

The artistic industries in India may be divided into three classes:—

(a) Local handicrafts which have with difficulty survived the competition of European and Indian factories.

(b) Artistic industries connected with Indian factories containing machinery driven by steam or electric power.

(c) Artistic industries dependent upon and connected with architecture and the building trades.

The industries in these three categories are not separated by absolutely rigid boundaries, but it is convenient to group them as above because each group broadly represents a class calling for different treatment to meet its requirements and a varying degree of service by the Schools of Art. This service and the needs of each class will be considered later, but before doing this it is pertinent to inquire into the number of schools of art in India that are available for the purpose: how they compare in numbers and equipment with similar institutions in Great Britain, what their scope is and how far they have fulfilled the purpose for which they were established. With these facts in our possession it will be possible to consider what steps it is advisable or necessary to take to co-ordinate the work of the schools with the needs of the industries.

**The Indian Art Schools.**

In British India there are five schools of art controlled and supported by Government, one each in the following cities: Bombay, Calcutta, Lahore, Lucknow and Madras. Those at Bombay, Calcutta and Madras have been established for many years, that at Lahore is of somewhat more recent date, while that at Lucknow was founded only a few years ago. The size, scope and equipment of the schools vary. That at Bombay cover a somewhat wide field and includes a fine art section comprising separate schools for drawing and painting, modelling, design and architecture, art workshops, and a scientific research laboratory and studios for pottery. Those at Lahore, Lucknow and Madras have directed their main efforts to the improvement of the artistic crafts of the provinces they serve, through the medium of the art workshops attached to the schools; while the school at Calcutta has devoted its attention mainly to the study of the graphic arts, and their revival upon traditional lines.

**A few shibboleths.**

From their first inception the schools of art have been regarded by Government more in the light of costly fads, thrust upon them by theorists in India and England, than as centres of practical utility to the country—a view that is now only in course of revision. This standpoint has certainly not been modified by the writings of a certain number of archæologists, domiciled in England, who have insisted that the only object the schools should set before them is the perpetuation of old Indian patterns. These writers assume that if the Indian craftsmen will only use the designs handed down to them by their forefathers, they will thereby find salvation from the economic ruin that threatens them from European competition. They further assume that it is possible for a school of art to lead a decaying industry back into the path of prosperity. Any one who has studied on the spot the causes which have resulted in the depression of the Indian craftsmen and is aware of the many difficulties surrounding the problem of rescuing them and at the same time has any knowledge of the true functions of a school of art in relation to industry, knows what a small basis of fact there is to support the first of these assumptions, and that the ideas represented by the second have been responsible for much of the ineffective work of the schools in the past. When her artistic crafts were prosperous and flourishing India was isolated. The articles produced by the craftsmen reflected the needs and tastes of the people of that period in construction and design. Since India ceased to be isolated, the needs and tastes of large sections of the people have gradually changed; alien styles of architecture have been introduced, involving the use of alien designs in their details; domestic articles, both useful and ornamental, and materials for costumes and furniture of foreign design have been imported, and are now used by Indians. During this period, while these changes of taste were at work, the methods of the Indian craftsmen have remained unaltered; but in Europe a complete revolution has taken place in industrial work. Steam has displaced hand-power, factories have taken the place of isolated workshops, world-wide business organization the place of local trading, and as a consequence of this extension of markets nationalism and tradition in design has been replaced by eclecticism.

The change of taste among those classes in India which in the past supported the indigenous craftsmen, the conservatism of the craftsmen in clinging to their old methods and workshop organization in the face of changed conditions, and the competition of the highly organized industries of Europe are the real causes of the financial collapse of the Indian craftsmen; while the debasement of his artistic work is due to his uninstructed attempts to meet the needs of his Indian customers, who no longer want articles of traditional pattern, but demand goods of alien origin and design. So far therefore is the assumption from being correct, that the downfall of the Indian craftsmen is due to their departure from the methods of their forefathers, that the reverse is rather the truth; their present depressed state having been brought about by their refusal to adapt their methods and ideas to modern conditions.

Build on tradition.

That one of the most important functions of an Indian school of art is the study of the ancient art of the country and that its students should be encouraged to build upon the foundation of tradition is almost too obviously a sound proposition to require statement, but as the vital art of every age and period has reflected the ideas, aspirations and life of the people, it is an equally obvious function of a modern school of art to keep in close touch with modern conditions and tendencies. To deplore the invasion of European ideas into Indian life and art is a perfectly natural and justifiable sentiment, which is shared by most people who can appreciate the beauties of the ancient craftwork of the country. It is a feeling akin to the regret that most of the best artistic minds in Europe have experienced at the extinction in the West of the ancient system of craftwork, carried on in independent workshops under master craftsmen, and the substitution of factories, with their use of machinery and the separation of the art of the designer from the work of the mechanic. To refuse to recognize the facts in either case, however, is as futile as is the attempt to put the clock back. Progress, on the contrary, lies in the direction of accepting the conditions which cannot be altered, and making the best artistic use of them. This generally has been the line taken in the European schools of art, where the students are encouraged to study the works of the past rather as sources of inspiration than as examples to imitate, and are at the same time instructed in the principles which underlie all good design of whatever country or age, and applying them to the requirement of modern industry. These fundamental ideas are as applicable to a school in India as they are to those in Europe, and those theorists who would tie the former solely to reproducing the dead past only show a misunderstanding of the causes which have resulted in the depression of the handicrafts in India, only equalled by their misconception regarding the power of a school of art to assist these industries. However useful such an institution may be as a means of supplementing the practical training a student can only obtain at the bench or in the drawing office, it is altogether outside its function to take their place. The school is an excellent servant to an industry, but has no more power to lead a flourishing one than it has of rescuing one which is threatened with extinction by rivals equipped with better staff, machinery and business organization. This, however, is the task the Indian schools were expected to accomplish: Had the isolated craftsmen been brought together, their methods improved or rather modernized: their processes made more systematic to avoid waste of time and materials: their designs adapted to the world's markets instead of to that of a locality, and had the whole been directed by a business organization such as exists in connection with the cotton mills in Bombay, the artistic crafts of India would have been now in as flourishing a condition as are those of Europe and Japan. The schools of art would then have been able to assist them in the same beneficial manner that has crowned the efforts of those in Great Britain and on the Continent. But to expect the schools to effect any improvement before this organizing work had been done, was to court disappointment.

ocal artistic andicrafts.

The most important of these crafts are brocade and ornamental silk weaving, cotton weaving, hand block printing on cotton and silk, gold and silver work, jewellery, ornamental brass and copper work.

Of the above-mentioned crafts those of weaving and hand block printing give employment to the greatest number of artisans and their organization offers the most promising field for experiment. As an instance of the benefits which may arise from such organization and of the manner in which an adjacent market may be lost for the lack of it, the following evidence of an expert in the textile industry may here be given. As is well known a considerable amount of hand block calico printing is still done in England, Holland and France. The extent of the industry cannot of course compare with the printing done by power machinery, but it employs a considerable number of skilled craftsmen, as the goods produced supply certain markets not within the power of, or not worth the while of, the larger factories to compete for. It has been stated by the expert referred to that the European hand block calico printers obtained a firm hold in the markets of East Africa, when that country was first opened to trade, because this process of printing enabled them to export and keep up a supply of varied patterns printed on short lengths of cloth. These European calico printers, however, were not isolated craftsmen each working for himself: they worked under the factory system, backed by vigilant and pushing business organizations. They were thus in a position to seize a market which, according to all reasonable expectation, should have been exploited by the hundreds of hand block calico printers carrying on their industry in Gujerat and along the coast of Western India, some thousands of miles nearer this market than their European rivals. Their failure to take advantage of this opportunity was due, not so much to lack of technical skill, as to the absence of business organization, for the isolated craftsmen of Gujerat were unaware that such a market existed, and were without direction regarding the type of designs in demand to meet its requirements. Thus a valuable market was lost, and the instance is very much to the point because this was not a case in which handicraftsmen were ousted by power-driven machinery but an instance of one set of craftsmen beating another because they were better organized and directed. This is still the condition of the hand block printers; and the thousands of isolated hand-loom weavers of ornamental fabrics are at the same disadvantage when competing with the workmen in similar crafts in Europe. They are at present struggling for a miserable existence because their industry is neither directed nor organized. Many of the designs they weave are of great beauty, and it cannot be too strongly emphasized that the workpeople should be encouraged to continue to weave these for their local market. These designs are, however, few in number and are not suitable for markets in other parts of India or abroad. If these hand block printers and weavers can be organized and directed to print or weave goods suitable for the world's markets, their industry and skill will have a chance of asserting themselves upon something like equal terms with their competitors. This can best be brought about by establishing a factory, and three methods of doing this at once suggest themselves :—

(*a*) Government itself might start a factory which, if commercially successful, could be handed over to a private company to work.

(*b*) Government might advance the capital or part of the capital to a private company to start a factory.

(*c*) Government might guarantee for a given period of time a certain fixed percentage upon the capital privately invested in starting a factory.

**The essence of success.**

Of these three suggestions the last (*c*) is in my opinion most likely to meet the case. The essential element of success is that the direction of such a factory shall be in the hands of persons having practical experience of the industry and having already a business organization at work in markets suitable for the goods the factory will produce. In England there are several firms engaged in brocade weaving by hand and hand block printing, and the first step towards the establishment of a factory in India is for Government to engage the services of an expert connected with one of these firms to visit the districts in which similar industries are carried on in India. He would be asked to investigate the methods of the craftsmen, inquire into the supply of raw materials, and gather all facts relating to the possibility of establishing a factory. If his report shows that by better organization, improved technique and the employment of suitable designs a factory will have a good chance of succeeding, Government might ask one of the English firms to establish a branch factory in India and guarantee a certain percentage of interest on the capital invested for a given number of years. The factory need not be housed in expensive buildings, and a cheap site could be found for it in a district in which the industry is now carried on. The cost to Government, even if it were called upon to fulfil its guarantee, would not be much more than is expended annually upon the salary of a weaving instructor at a technical institute, and if a firm could be induced to undertake the enterprise, the factory would start with the great initial advantage of a ready-made business organization to direct its efforts and the service of skilled designers and directors. If the report were unfavourable the scheme could be abandoned before any serious expenditure had been incurred. In the event of this occurring the weaving and block printing handicrafts may be helped, though not so effectively, in the same manner I now suggest should be applied to the other isolated artistic tradesmen. These are the metal workers, gold and silversmiths, jewellers and artisans employed in a number of small industries. These craftsmen are in a somewhat better position than the weavers and block printers and the schools of art have already helped them by teaching drawing and design to a large number of young craftsmen, and by setting them to copy objects made at the best periods of Indian craftwork. The teaching thus given has, however, been wasted to a great extent by the fact that in business these young craftsmen are called upon by their clients to make articles new to this country, for which, therefore, no traditional patterns exist.

**Evil influence of catalogues.**

Books containing the best shapes and designs of these articles have never been translated into the vernacular, whereas the bazaars are flooded with illustrated catalogues issued by European firms dealing in the commoner sorts of silver and electroplated ware and jewellery. These trade catalogues can be acquired for nothing, and, therefore, circulate freely. They are the evil influence which counteracts the teaching in the schools of art, for the Indian craftsman, whose intuitive taste can often be relied upon to keep him fairly straight when dealing with traditional designs, has not yet been educated to discriminate between the best and the worst of alien shapes and patterns, and at present he has the worst only before his eyes. To eradicate the pernicious influence of these catalogues and to educate the taste of the craftsmen, the example of the Austrian Government in dealing with a somewhat similar problem may well be followed. When this Government took up the question of establishing village industries, its advisors recognized that the commercial as well as artistic basis of all successful craftwork is good design; and furthermore that the selection of designs could not be left altogether to the uninstructed taste of peasants. A separate department was therefore established in the Central School of Art at Vienna and was placed under the direction of one of the foremost designers in Austria. In consultation with businessmen a list of articles was drawn up which included those most readily saleable to the public and at the same time within the capacity of the peasants to produce. The designer and his assistants then collected the best traditional designs relating to these articles if such existed, and designed new patterns for those selected articles which were without any, or had only debased ones. A large number of the best old and modern designs were thus collected, and were lithographed to full size, upon sheets which also contained sectional and working drawings. In order to encourage the craftsmen to rise beyond the stage of the mere copyist and exercise their ingenuity, the basis of each pattern and design was clearly explained and sketch illustrations suggesting variety of treatment were given.

ample of Austria.

These designs are distributed without any charge to the village craftsmen, and are used in the local craft schools throughout the country, new sheets being continually issued from the central design studio at the school of art. It may be mentioned here that neither the design studio nor its director has any connection with the ordinary teaching work carried on in the classes of the school except in so far as this that the staff of his studio is recruited from among the design students who have completed their course of study in the school. The beautiful but simple designs carried out in embroidery, stencilling, lace, wicker-work for baskets, and chairs, and the quaint and fanciful patterns for wooden articles, such as boxes and toys, produced by Austrian peasants under this system proved how sound and effective it is, and how well repaid has been the money expended upon it. Although the connection of the school of art with these industries ends at this stage the efforts of Government on their behalf are not left unfinished. They are completed by the establishment of agencies in every district for the supply of the raw materials to the craftsmen and the collection and inspection of the finished articles. In Vienna, Budapest and in the principal cities and towns throughout the country show-rooms or agencies have been opened for the sale of these articles and the whole industry is freely advertised in the newspapers, and indirectly by inspired articles contributed to magazines throughout the world. A show-room somewhat upon the lines of those in Austrian cities was established some years ago in Madras, and has, I understand, justified expectation, but the initial and educative features which make the Austrian model so valuable and progressive are missing from the Madras scheme. These can be added, however, and when the war is over there should be no difficulty in starting a comprehensive scheme for India. To be successful it must be conducted in no niggardly spirit, such as that which in the past has attempted to make one man do the work of three, but after the whole scheme has been carefully considered with reference to the handicrafts concerned, and the relation of each part of the scheme to the whole has been settled, the best men who can be found should be engaged for each section and each should be free to devote his whole attention to the particular work he has to do.

applied to
rk in factories
l workshops.

The professions and industries under this heading comprise designing for power weaving, designing and engraving for calico printing by machinery, photography and photo mechanical work, lithography, printing and book binding. These artistic branches of trade need the assistance of the school, but its help should be applied in a less direct manner than in the case of the handicrafts. An apprentice or young workman must learn the practical side of his subject in the factory or drawing office, but the exigencies of business may not allow of his receiving instruction in important branches of his industry which have no direct bearing upon the particular work the factory is engaged in. To impart this instruction is the function of the school of art, by providing early morning or evening classes for the study of drawing and design, and for higher technical subjects connected with each industry. The London County Council has established hundreds of such classes throughout London, which have greatly benefited the trades concerned, as well as the apprentices and young workmen employed in them. The great majority of the instructors in these classes are practical workers employed during the daytime in their professions or trade. The applied art classes are thereby kept in touch with industry and are directed by men well acquainted with the needs of their students. To obtain a sufficient number of such expert instructors in India may present some difficulties, but the number of experts available in a given industry will in itself be a useful guide to the authorities in judging whether a class to serve such an industry is required. The plan of the London County Council is to start an evening class for the benefit of any industry, provided a certain number of genuine workers employed in it sign a requisition asking for its establishment. This is a wise precaution against the multiplication of classes for the same subject and the establishment of those that do not serve any useful purpose. In this respect, the system is a valuable guide to India where the amateur educationist is more abundantly in evidence than in Europe, for it shows a true perception of the function of schools of art in their relation to industries, namely, that of a servant and helper and not that of a leader. The success attending the early morning school of architecture at the Sir J. J. School of Art is an instance of the beneficial application of this system, when a real demand for instruction is present and expert instructors are available and are prepared to offer their services to meet it. The widening of its scope to include morning or evening classes for textile design, photo mechanical engraving, lithography and other branches of art as applied to industry is only a question of a demand for their establishment by the workers, the possibility of engaging expert instructors and the provision of funds. As these industries grow in importance the artisans engaged in them will, without doubt, express their wish that facilities for education may be provided, and experts will be available as instructors. When this occurs the cost of starting and maintaining the classes will be trifling compared with the benefit they will confer; but the mistake so often made in the past in this country of starting a class before there is any real demand for it, or any existing industry to absorb the pupils, should be rigorously avoided.

**Artistic industries, architecture and the building trade.**

These professions and industries include designing, modelling, and carving for stone connected with wood, *terra-cotta*, and plaster work; ornamental wrought and cast iron work, ornamental brass, copper and bronze work, cabinet making, inlaying and fine joinery, tile work, decorative painting. They are of great importance, and the manner in which they can be assisted presents a difficult problem to solve owing to the lack of opportunities of obtaining practical experience under working and business conditions open to design and technical students at schools of art.

In England this opportunity is afforded by the studios and workshops of the large and wealthy firms by whom applied art work is chiefly carried on. These studios and workshops are superintended by designers possessing, in many instances, talent of a very high order, assisted by thoroughly trained and experienced craftsmen. A student engaged as an assistant or apprentice in one of these studios or workshops gains a knowledge of design and work it would be impossible for him to acquire in a school of art only, though he is able, by the study of advanced drawing and design in the classes of the school, to supplement his studio and workshop practice. Thus studio, workshop and school work together, each supplying what the other lacks; they combine to keep up the numbers of experienced designers and trained craftsmen capable of taking the places of the elder men as they retire or of providing reliable superintendence for new enterprises as they are started.

As there is an almost unlimited supply of trained designers in England, capitalists investing money in businesses engaged in applied art work can, by paying for it, command the services of the best talent in the country. In India, on the contrary, there are scarcely any trained designers at all, and by their absence capitalists are prevented from engaging in business in this direction, while the art students in India are deprived of those opportunities of gaining practical experience enjoyed by students in England. It is quite true that an Indian firm might engage the services of an expert European designer to superintend their drawing office, but it is very doubtful if sufficient inducement to leave England could be held out to the best in the profession. Remuneration would have, in any case, to be offered on a scale that would render the commercial success of any such undertaking extremely problematical. To import second class men, or those who are failures in England, would be worse than useless; it has already been tried with disastrous results both to the men themselves and the capitalists who have engaged them.

**Practical experience needed.**

As with designers so with craftsmen: the absence of practical workshop training in high class decorative work under the best men in their professions such as can be obtained by apprentices and young craftsmen in Great Britain severely handicaps the Indian craftsmen practising any of the industries I have specified. Were the craft teachers in the schools of art in India the equals in knowledge of design and technique of those attached to the schools of art in Great Britain, Indian students at the completion of their courses of study would not be competent to superintend important work; no English student would be considered so for a moment, but recruited as most of the Indian craft teachers are from the bazaars and deprived of business experience as the students are, it is not a matter of surprise that schools of art in India have failed to provide designers and craftsmen capable of meeting the requirements of architects anxious to introduce the best workmanship into their buildings. How can this opportunity of gaining practical experience be provided for art students in India? Two ways suggest themselves. The first is for Government to select the best students trained in the technical workshops and design classes at the schools of art, grant them scholarships and place them as articled pupils for two or three years with the few really good firms undertaking decorative work in India, at the same time arranging for the continued attendance of the students at the advanced classes for drawing, modelling and design of the schools of art for two or three hours daily. By this means the practical experience of the workshop and drawing office might be combined with higher artistic training, but I confess to having no great faith in the successful working of this plan for any length of time.

**A Government Design Studio.**

The alternative method of solving the problem is more ambitious, but is more certain. In suggesting its adoption, I do so the more readily because it will meet the educational difficulties of the students, and at the same time result in the production of much better artistic and technical work for Government buildings, and thus be the means of permanently raising the standard of the applied arts connected with the building trade throughout the country. At the present time, although many thousands of pounds are spent annually by Government upon buildings of monumental scale and character, the decorative adjuncts of these buildings fall very far short of the standard of those seen in Europe. Many of these buildings have been shorn of decorative details contrary to the inclination of their architects, because they found it impossible to get them carried out in a satisfactory manner in India. They are tired of entrusting such work to contractors, who have no knowledge or understanding of style, are not even craftsmen, much less master craftsmen themselves, but are merely tradesmen who have no more interest or pride in the artistic quality of their work than they have in the artistic education of the men they employ. The case is otherwise in Great Britain and the continent, where the heads of such firms are often men of high artistic attainments. The young artisans and designers employed in these firms are encouraged in every way by their employers to attend the local craft and art classes, who in many instances pay their fees as a further inducement to do so, while it is not uncommon to find that liberal scholarships and endowments are provided by firms to enable the best of their employés to continue their studies in the higher branches of artistic work. No hope of assistance can be looked for by the present generation of building contractors in this direction and it remains, therefore, for Government to take the task in hand. This can be done by Government starting an institution consisting of a design studio, with art workshops attached, in which the architect's designs for decorative work in Government buildings can be carried out under the supervision of a first class designer assisted by a staff of experts to direct the technical work of each department. The beneficial effect of such an establishment would be felt in many directions. Architects would be able to rely upon their detail drawings being enlarged and carried out with sympathy for and understanding of the styles in which the buildings are designed, and would be assured that the workmanship of the actual details would be of the best quality. As many promising students from the design and technical classes of the schools of art as are competent for admission could be received as articled pupils or assistants in the drawing office, studio or workshops, there to obtain a practical and business training in their profession or craft. Such an institution, drawing its recruits from the schools of art, would exercise a healthy and progressive influence upon the instruction given to their students, and, in setting the highest and most modern standard of technical training as a goal to be striven for, would release the teaching of the schools from the thraldom of bazaar practice, which stands in the way of all improvement. It would be a model for craft workshops throughout the country and a centre whence capable and fully trained designers and craftsmen could be procured by private firms.

Considerations of cost.

Although the work undertaken by the establishment I propose would be solely that for Government, it should be conducted purely on business lines, but its accounts, though subject to strict audit, should be free from the restrictions and red tape of the Accountant General's office. It must not be expected of its managers that they are to compete, so far as prices are concerned, with outside contractors, for the cost of the work produced must necessarily be slightly higher than that charged for the inferior bazaar work now put into buildings, though the difference between the two may be considerably lessened by improved and more expeditious methods employed in the Government workshops. Even if the cost were greater the extra expense would be fully justified when consideration is given to the substantial amount of money now thrown away upon inferior work, without any educative or artistic return whatever, and when account is also taken of the considerable sums spent upon schools of art, with such inadequate practical results. If the establishment by Government of combined studios and workshops such as I have outlined can ensure better work for the architects, raise the standard of craftwork throughout the country, bring the art students into touch with practical work, and secure the Indian craftsmen and designers an adequate share of the work upon Indian buildings, any reasonable expenditure incurred will be money well spent for a truly national purpose.

Opportunity offered by Delhi.

The present time is especially propitious for the commencement of the scheme. The erection of the Government buildings in the Imperial City of Delhi has begun, and for the details and furnishing of these buildings an immense quantity of artistic work in wood, stone and metal and in textiles will be required; more than enough to keep a Government studio and workshop at full work for some years to come. Never since the time of the Moghul Emperors has such an opportunity presented itself of establishing a national school of design and craftsmanship, and of bringing together the best artistic and technical talent in the country to take part in the successful realization of a great undertaking. The two eminent architects who have designed these buildings would surely welcome the establishment of such an institution to assist them, while it is difficult to conceive a more favourable augury of success than that it should commence its labours under their direction and inspiration.

### ORAL EVIDENCE, 20TH NOVEMBER 1917.

*Mr. G. A. Thomas.*—*Q.* You say, "Had the isolated craftsmen been brought together, their methods improved or rather modernized, etc.,.... ". Do you think it is practicable to bring isolated craftsmen together in India ?—*A.* I think it would be.

*Q.* You think they could be collected and concentrated in one spot ?—*A.* For instance, I was thinking of the brocade weavers and hand-block printers in Gujarat, and I think you can get them together.

*Q.* You also suggest the establishment of a factory for these people ?—*A.* Yes.

*Q.* You will have to get housing accommodation ?—*A.* I suppose you would. The whole idea is not to spend much money.

*Q.* You will have to persuade them to come with their families from the different villages ?—*A.* Yes.

*Q*. Would that not increase the cost of production ?—*A*. I do not think it would ; not as compared with the advantage of having them all together and having this factory systematically worked.

*Q*. Then you refer to the Austrian example and say : " Although the connection of the School of Art with these industries ends at this stage, the efforts of Government on their behalf are not left unfinished. They are completed by the establishment of agencies in every district for the supply of the raw materials to the craftsmen and the collection and inspection of the finished articles ". Would that not take the place of a factory ?—*A*. It would not be exactly the same thing, because these industries which the Austrian Government encouraged were village industries which the people were occupied with in the winter. They could not work during the winter in their fields, and village industries were intended to give them profitable employment.

*Q*. All these industries are village industries ?—*A*. An industry like brocade weaving industry and hand-block printing industry involves a great many different processes, such as dyeing, arranging warps, etc., and an improved kind of plant is necessary to progress in them.

*Q*. You will have to bring them together to some extent ?—*A*. You get your factory organization. Each individual villager now tries to do every process, setting up warps, sizing, dyeing and weaving, while in the factory each process could be done in a separate department.

*Q*. As for these industries you will have to bring the people together in a factory, and as regards others you would adopt the Austrian system of sending round the sheets and having a collecting agency.—*A*. Yes. In an industry like the silversmiths' industry in the Bombay Presidency you cannot get a piece of pure design at all. The artisans study trade catalogues of the worst examples of European silver work and produce them because they can get these trade catalogues for nothing. As long as they stick entirely to their traditional articles the silversmiths very often show good taste, but directly they try to produce an article which is not of Indian origin, they appear to be lost, and they go to the trade catalogue for inspiration.

*Q*. Would it not be possible for these sheets to be issued by the existing Schools of Art such as yours ?—*A*. They can be issued by us, but you cannot mix up the teaching work of the school with a section which has to do that. In Austria they did not attempt it. One of the best designers in Austria was engaged, and they gave him some assistance to gather the best existing traditional designs of the articles dealt with, and when those were absent he designed standard types himself. These designs were then lithographed and distributed among the villagers and the village technical schools. The Government went further than that, because the Botanical Department grew in the Government Botanical Gardens the actual withies from which the basket work is made and sent cuttings to the villages where they were likely to grow. These were planted under supervision. The designs for basket work sent out to the villages are distributed and inspectors go round to see that the people are making the things properly. The Government established agencies in all the towns in Austria for the reception of the articles, where they were sold, and they advertised them, not only in the ordinary way, but also by inspired articles in the American and European journals.

*Q*. You are acquainted with the *Journal of Indian Arts and Industry* ?—*A*. Yes.

*Q*. Does it serve any practical purpose ?—*A*. No.

*Q*. Would you substitute any other journal for it ?—*A*. I do not think it is very much good. I have never come across a craftsman in a shop with a copy of the journal.

*Q*. Is that because of the expense ?—*A*. I do not know the exact reason. One reason may be that there is no system in the arrangement of the journal. You get an article on one subject one month and on another another month. This may suit the general reader but is useless for the particular craftsman. A suggestion which was supported by the Museums Conference was put forward by the Principals of the Schools of Art at a conference held in Calcutta in 1905 and a resolution was carried advising Government to make a regular survey of old Indian craft work, to get all the information already written upon the subject brought together and to have a final book on each of the subjects compiled under an expert editor.

*Q*. But would this reach the village craftsmen at all ?—*A*. The books would be distributed to the libraries in local craft schools, and individual drawings could be reproduced and distributed to craftsmen. One of the great things that is wanted, as far as the village people are concerned, is undoubtedly technical books in the vernacular. Many craftsmen in our own workshops have nothing to read on the subject. The School of Art possesses a library consisting of 3,000 to 4,000 volumes, but it can be used by very few of our craft teachers, although ample use is made of it by our Art Masters.

*Q.* There is a market for books of that sort ?—*A.* No great market, but their publication would be a great thing for the craftsmen and would give them a chance of improving their methods. That is one way in which improvement takes place in Europe.

*Sir D. J. Tata.*—*Q.* Would it not be rather difficult to express yourself in the vernacular on this subject because there are not equivalent terms in the vernacular ?—*A.* It would be rather difficult. If the books had plenty of drawings, especially working and sectional drawings the difficulty could be lessened, that is one of the methods used in the school. Every trade has its peculiar technical terms which are not understood by laymen but become familiar to craftsmen. The English technical terms missing in the vernacular would in time be understood by Indian craftsmen.

*Q.* There is no traditional literature on art, and it is very difficult to express yourself in art terms. Is it not ?—*A.* Yes, it is generally, but students who do not understand English are taught the English technical terms in the school classes.

*Q.* That would make it very difficult to get books in the vernaculars ?—*A.* It will be one step in the right direction—better than their having nothing to read, and technical terms, as I have said, can be explained by a drawing.

*Mr. C. E. Low.*—*Q.* You point out the necessity of organization of craftsmen before schools can be of assistance to them. What is the channel by which you get in touch with the craftsmen in the districts ?—*A.* We get into touch with them entirely through our own native mistries. They are caste men.

*Q.* Do you get men from the mofussil ?—*A.* We have some sent up by the local boards and mission schools.

*Q.* Is there any official organization representing the mofussil which corresponds with you and which you can call on for assistance to popularize anything you are doing ? *A.* No.

*Q.* You have not taken up the same idea that you notice is being followed in Madras of keeping a place where locally made articles and good specimens of local artistic manufacture are sold ?—*A.* No. That has not been started in Bombay.

*Q.* What is your idea of such a proposition ?—*A.* It is a good idea, provided, as in Austria, the whole thing is linked together with education.

*Q.* Don't you feel yourself suffering under considerable difficulties in the absence of any positive link between yourself and what is going on in the districts ?—*A.* Our principal link is with our own students. In nearly every place, in Gujarat, for instance, you can hardly go to a place without finding some of our students working as goldsmiths, silversmiths, etc.

*Q.* But so far as you are concerned in order to be able to benefit the country fully by the work you are doing here, something more definite is needed. For instance, supposing you have got your eye on a thing like the Gujarat calico printing, and you are prepared to take up the question of improving it and to widen the scope of design there is no body or organization which you can command and any work that you do would be thrown away ?—*A.* That is so. Until you get an industry organized, isolated crafts schools are of little use.

*Q.* What kind of organization do you contemplate as ideal for assisting you in that ? *A.* I do not know that. With regard to weavers, I illustrate it by the fact that Government allotted a grant of money to enlist the services of an expert brocade weaver for the staff of the School of Art. When I went to England I was authorized to find one. There was only one man in London I could discover who came anywhere near to the satisfactory standard, and he was too old to come to India. He wanted to come, but considering his age it was thought better not to engage him. It appeared to me upon thinking the matter over that until the brocade weaving craft had been organized, the establishment of a special craft school would be a waste of money. I was confirmed in this opinion by conversations I had with experts in England. Organization should precede the establishment of a craft school, the Gujarati weavers are good weavers. It is not a question of their not knowing their trade, what they do not know is the proper market for their goods, and the kind of design suitable for those markets. Having gone to Canterbury and one or two other centres and seen the hand-loom brocade weavers working in England, it struck me at once that the practical way of solving this question would be for Government to engage one of the members of the firms who are established in this industry in England to visit India for the cold weather and to go round and see the centres where brocade weaving is being done, and where the craftsmen are only earning very miserable pay because they only weave for the local market. This expert would see that these people are nearly if not quite as expert weavers and as industrious workers as those in England and might possibly agree, if Government would guarantee a certain percentage upon the capital involved for a given period, to set up a small factory here. If this were done the whole of the business organization would be in the hands of those who know the markets, would supply suitable designs, and furnish business experience. It would be found that the weavers here owing to the cheapness of their labour could probably weave brocades which now cost on the London market anything between 10*s.* and £3 per yard for half the price.

*Q*. Don't you think that some form of Government organization is also required to hunt out these things ?—*A*. It will be all to the good. My point was this. If Government had engaged a technical instructor for the weaving school, the total cost for his services over five years would have been £5,000. It would cost Government no more to guarantee five per cent. interest upon the capital invested in the factory for a period of ten years. If you have got the factory firmly established, you can then start a craft school in connection with it. But until the trade is organized a craft school is of little use.

*Q*. You say, "The European hand-block calico printers obtained a firm hold in the markets of East Africa." You had this from some expert ?—*A*. From Mr. Wallace of the *Indian Textile Journal.*

*Q*. You think you are satisfied as to the fact yourself ?—*A*. I cannot say. I took his word for it. I think it is very likely to be the case.

*Q*. It can be easily verified by the local Industrial Department by referring to East Africa.—*A*. Yes.

*Q*. What do the people do who have been through the School of Art as architects after they pass through the course ?—*A*. About 85 per cent. are already in architects' offices in Bombay, employed as draftsmen.

*Q*. Who does the designing in these architects' offices ?—*A*. I presume the architects, that is the heads of the firms. The School of Art cannot supply a sufficient number of draftsmen for all the people who write to me. Our course includes design and also estimating.

*Q*. And what sort of pay do these students draw ?—*A*. They will not go out of Bombay for less than Rs. 100 a month. I have the offer of a job on Rs. 275 in the Malay States, but I cannot find anyone to take it.

*Q*. Has any movement been made on the part of the mills towards any form of training in textile design ?—*A*. The only people by whom our students are employed are certain merchants in Bombay, the importers and sellers of printed textiles. Several of our students have worked in these offices. The dealers report that certain patterns are popular in the bazaar, and the designers employed by the merchants make designs of a similar character which are sent to England to be printed. That is what, as far as I can understand, they do.

*Q*. In the absence of calico printing here on any extensive scale, is there much scope for textile designing in the ordinary sense of the word ?—*A*. No. There is not a great amount of machine calico printing in Bombay. It needs the presence of two or three allied or key industries which do not exist at present.

*Q*. I understand that a survey of pottery clays has been carried out with all the details by Mr. Fern.—*A*. We have nearly finished the report containing all the work that has been done in this direction with about 50 or 60 illustrations, but it has not yet been issued.

*President*. *Q*. There was a communication about it ? (about the report).—*A*. Yes. We sent the draft of a portion of it to you.

*Q*. Has that been published yet ?—*A*. No. I think we sent to the Industrial Commission that portion which deals with the analyses of clays.

*Q*. Have you not issued recently any report of any kind ?—*A*. No.

*Q*. Sir Stanley Reed said yesterday that you published a report dealing with the development of pottery clays in connection with roofing tiles.—*A*. A small estimate has been published, giving the cost of two classes of pottery works. The report referred to goes more fully into our work, and includes analyses of all the clays, giving the exact composition, etc.

*Q*. Discussing the way in which a composition may be effected for useful purposes ?—*A*. Yes. These are taken from our records. Anybody who wishes may send any clay from anywhere in India. Mr. Fern makes chemical and physical analyses, and he gives a report concerning the purpose for which the clay may be used, and what may be added to make it useful if it is defective.

*Q*. You have not had any people coming round and making inquiries about clays which would lead to actual business yet ?—*A*. I should say that nearly everybody who runs a pottery in India has visited or written to us. We have about four or five inquiries made and three or four samples sent each week. The inquiries are often very vague, but we always ask the inquirer to send a cwt. or so of the clay he proposes to use, and Mr. Fern and his staff analyse it and make experiments and send up a report.

*Q*. I cannot pursue this inquiry without trenching on the border of trade secrets, but Messrs. Burn & Co. of Jubbulpore were considering whether they could use certain materials in a way which would enable them to make certain things. That is the kind of question that would be referred to you ?—*A*. Yes. It is our business to carry out any experiments which could assist them.

*Q*. You have that kind of inquiry ?—*A*. Yes.

*Hon'ble Sir R. N. Mookerjee.*—*Q.* Do you think that an art school should also include a crafts school as you have got here ?—*A.* I do not believe in purely an art school. It is too large a subject to discuss here, but I certainly am of the opinion that a craft school should form a portion of every art school.

*Q.* The other day we saw some students who were making brocade and others were engaged in making pottery. But how do the outside people know that that industry would pay ?—*A.* An isolated craft school has many drawbacks. The best craft schools are those attached to some going concern.

*Q.* Then it comes to this, that the expenditure incurred in this branch does not produce any good result ?—*A.* I should not say that it is useless, for all our crafts students go into business either as journeymen or on their own account, and the tuition they receive in the School of Art undoubtedly improves their work, especially so far as it is dependent upon drawing and design. You find that most of the traditional craftsmen have gone and many people who now take up an artistic industry do not come from those traditional classes at all. In the Reay Art Workshops a certain number of the pupils are sons of caste tradesmen, and our endeavour is to teach these boys the technique of their craft, instruct them in free hand and workshop drawing and in design. Except in our crafts school, however, the students come from the same class as attend the Arts Colleges of the University.

*Q.* Ordinarily an architect should make designs, and it is the work of the manufacturing firms to carry them out, *i.e.*, to do the work according to the design ?—*A.* Yes, it is the present practice.

*Q.* This school need not necessarily be connected with that part of manufacturer's work ?—*A.* They are connected. Good workmanship is wasted if the design is not good, and no designer can design for a special object in a really satisfactory manner unless he knows the technique of the craftsmanship.

*Q.* In the case of a building, the architect makes the design and he sends it to the man in charge of the building to carry it out ?—*A.* The architect supervises the work.

*Q.* The man who will supervise the work should see that it is done according to design ?—*A.* Yes. But the fact that many designers of buildings do not know much about actual craftwork accounts for a good deal of bad work.

*Q.* The architect who makes the design is a different person from the man who builds it.—*A.* That is generally the case at present, but if you take an artistic craft such as that of wrought iron work. The best wrought iron work done in England is by a certain firm, the head of which is a very good designer himself and one of the great authorities upon the subject.

*Q.* If I go to your place and ask you what it would cost per square foot. Can you give me that information ?—*A.* Yes. We can.

*Q.* On a commercial scale ?—*A.* I can give you an idea of the cost per square foot.

*Q.* Take the pottery work, hundreds and thousands of medicinal pots are imported yearly, but has anybody approached Mr. Fern to take his advice to start a pottery factory ?—*A.* No. We have not received any such inquiries.

*Q.* But if an expert like Mr. Fern had started a business, giving opportunity to outside people to watch, they would have understood the commercial value of such a factory, and it would have thereby given an impetus to others to start such a business ?—*A.* In an industry like pottery the ordinary commercial man is absolutely at the mercy of the expert.

*Q.* But that expert is hidden away in your School of Art.—*A.* But we have got three or four men who have been trained there. Two of them are finishing their course in England. We have a third man who is a Government of India scholar, and is Mr. Fern's assistant. He is working in England, and will be available as a pottery expert when he returns.

*Q.* Can Mr. Fern give any idea as to the cost of those beautiful tiles we saw for flooring ?—*A.* Yes. He can.

*Q.* Not the English cost but the manufacturing cost, say in Bombay.—*A.* Yes. With tiles we get our first results on a small scale in experimental kilns. We then make about 4,000 tiles of the same quality, and during the manufacture of these tiles a record is kept of the time that is taken to press the tiles, the cost of the material, of coal, and labour, the whole thing is worked out as it would be in a factory, and those figures are available.

*Q.* Published regularly ?—*A.* No, they are not published. I do not suppose we have more than four or five records of that description. If anybody inquires from Mr. Fern the cost of producing a hundred or a thousand tiles, from his books he will be able to give some idea as to what the cost will be as compared with the cost of those imported from Marseilles, Italy or England.

*Q.* How is anybody to know that an expert like Mr. Fern is here ? How can a man, say in Madras or Bengal, know unless a book or something of that sort is published for general information ?—*A.* When the report is published it will assist to make the work of the department more widely known. We have purposely not sold any of the products of the pottery because it is impossible to carry on a trade establishment and a research laboratory with the same staff. The samples which have been produced are being kept as type specimens, and it is proposed to make collections of these and present them with full descriptions to the principal museums in India.

*Q.* You intend to publish all such information ?—*A.* Yes.

*Mr. A. Chatterton.*—*Q.* Can you give us any details as to how you would carry out the ideas which you have put forward in your note with regard to the creation of an organization that would develop artistic industries ?—*A.* The scheme I have been most keen upon seeing started since I have been in India has been the establishment of a design studio and workshops. That I think would be perfectly easy to run. It will be necessary to get a first class designer at its head.

*Q.* What would you have to pay to get such men ?—*A.* About Rs. 1,500 going to Rs. 2,000 a month.

*Q.* How would you work in connection with the new buildings at Delhi ? Would your designer be the connecting link with the Delhi organization ?—*A.* Yes.

*Q.* You would have no direct relations of course with the Public Works Department ?—*A.* No, I do not think it is necessary particularly to have direct connection with the Public Works Department. A great deal of the work would come through them in some way or other. The Consulting Architects to Government are connected with the Public Works Department.

*Q.* Do you think it is practicable to have attached to the School of Arts a studio and an art workshops ?—*A.* I think it would be preferable to have it as a separate institution, but it will have an enormous influence on the school. At the present time, in our workshops we are tied to the bazaar. We have got to train our students to obtain work in the bazaar. If we instruct students in working a machine which saves time and labour on a purely mechanical job, when they go to the bazaar, they find that such a machine is not being used. The school workshops are therefore tied to the lowest and most conservative standard of workmanship instead of to the highest and most progressive. The studio and workshops I suggest would have the finest equipment that you could get.

*Q.* Would you get enough work in Bombay ?—*A.* There is enough work in India. It is better to make it for all India.

*Q.* You would start with work on the architectural details of the buildings at Delhi ?—*A.* Wood work, stone work and every other craft that is connected with the building trades, including also the furnishing trade will be needed for Delhi. It affords the best opportunity for technical education that has presented itself since the time of the Moghul Emperors.

*Q.* At Delhi the decoration of some of the rooms might require tiled panels, similar to those you have shown to us when we visited your school. Assuming that a number of panels of that class were wanted, how would you set about producing them on a large scale ?—*A.* That would not be difficult.

*Q.* Would you be able to get them from the School of Arts here ?—*A.* You cannot teach people and at the same time make them do the thing. An entirely separate department would be required, if output on a commercial scale were attempted by the School of Art. As regards the actual painting of the tiles in a month we could train fifty of our students to do this part of the work. Where the really expert portion would come in would be in designing the whole panels, and only a skilled artist and designer could undertake this.

*Q.* Do you know the system that is in vogue in Madras ?—*A.* Yes.

*Q.* Do you think it is practicable to have industrial workshops attached to the Schools of Art in each Presidency, where students would find employment after completing their ordinary training and where they would gain additional experience ? In these studios they would work under the superintendence of skilled designers, who would have nothing to do with the ordinary work of the school ?—*A.* It is on a small scale what I want to make on a big scale.

*Q.* You want to start your scheme on a big scale and you have to face the difficulty of obtaining money and convincing people that it would be profitable.—*A.* In Bombay the Government might start it. The only doubt is whether a single Government would be able to supply enough work to keep the studio and workshops going, but the whole of India certainly would. But if this had been started ten years ago in Bombay, it is unquestionable that with all the Government buildings which have been erected, enough work for a very large number of wood-workers and metal-workers would have been provided, and we should have fine work in the buildings instead of inferior work at a slightly enhanced price. In addition the establishment of such a studio and workshops would have proved a great step forward in promoting technical education. At present architects employ only contractors, who had not been even craftsmen, much less master craftsmen before becoming contractors, and are simply tradesmen who take the contract merely as a business proposition and do not care whether the work is good or bad so long as it pays them.

*Q.* One point I should like to have made clear is this—supposing it was a Local Government concern, it would probably be started on a small scale and with a comparatively limited number of designers in the studio, would that not be courting failure, whereas if you started on a bigger scale and with possibly a more skilled staff you would make it a success?—*A.* Yes.

*Q.* You are running a considerable risk of failure by trying to work on a small scale?—*A.* Yes.

*Q.* How many men would you want for the studio?—*A.* A head man and one assistant, and then you would get the rest of the men from among the students trained in the Schools of Art.

*Q.* But is there not difficulty in getting men trained in this country owing to the fact that the art student is out of touch with the environment in which the work is going to be exhibited or used?—*A.* At present they only get a certain amount of practical training upon paper in the School of Art, but they get no training as a boy does in England. A boy wishing to become a designer in England spends five years' apprenticeship in practical work as a draftsman. During that time he also attends the School of Art where he is taught subjects which the firms to which he is apprenticed cannot bother to teach him in the studio. When he has done his five years of practical work he is not considered fit to take charge of a decorative studio, but he obtains employment as an assistant to the men at the top who have gone through twenty-five years of practical work.

*Q.* In the Victoria Jubilee Technical Institute in Madras where they have collected specimens of the arts and crafts of the Presidency and exhibited them for sale the governing body has stopped at the point where it ought to have gone ahead by establishing something on the lines you are advocating. The real difficulty, I think, in Madras is to get competent men to advise how further work is to be done. A small workshop was started to turn out better work, but it came to grief because there were no art designers. Would it be possible to combine a number of institutes like that in the various parts of India, and then open a depôt in London with branches possibly in other metropolitan towns so as to develop business on a large scale, and thus render it possible to pay the staff that would be wanted to improve matters? Is the work done in this country sufficiently good to make it worth while starting this, or would you go through a long preliminary course beforehand?—*A.* The experience I have heard stated with regard to Indian artware is from a businessman who had a shop in London for many years, who said it never paid, and he closed his shop.

*Q.* Do you know why?—*A.* Because Indian articles do not fit in with the decorations of people's houses in England.

*Q.* It comes then to what I have already suggested that the craftsmen are out of touch with their patrons?—*A.* The Indian craftsmen knows how to design the things that have been used in India for centuries, but he does not know what designs are wanted for foreign markets. His market has always been a local one. The whole trade of England is based upon supplying a world's market. The designers in Manchester who design textiles for the Indian market do not attempt to force them into the South African market, nor do they attempt to force designs suitable for the South African market into India. The designers in England are able to design in any style or for any market required. They consult the manufacturers in Manchester, Yorkshire, etc., and find out what style is going to be the style for the coming year and start their designs with that view. People think that fashions are made by women, but the manufacturers are the real persons who dictate them.

*Q.* Are you of opinion that nothing can be done in the direction of selling articles of Indian design in England?—*A.* I do not think success will be achieved if you confine yourself to Indian patterns. I think you must turn the Indian craftsman into a world worker and not a local worker. The brocade weavers I have mentioned are typical, they know only the local market. They are perfectly capable weavers, but they do not know what is wanted in England or America, and therefore their chief asset in the world's market for handicrafts, that of cheap labour, is wasted, because they do not know where to use it.

*Q.* You think that nothing ought to be done beyond working on the lines that you have suggested in your note?—*A.* Yes, education will do something, but under modern conditions of production and commerce it is difficult to see how you are ever going to regenerate the handicrafts of India until you have got them organized It is not that I am in favour of the present system, my sympathies are entirely for the system of production practised in the middle ages, but it is useless to hope for their return, so one must make the best artistic use of present conditions.

*Q*. I want to ask you about the workshops attached to your school. Where do you take apprentices from? Are they all Government scholars?—*A*. Yes. They are mostly caste men in the trade. We give preference to these.

*Q*. You pay them?—*A*. In the first year they do not get anything, but after the first year they start on Rs. 5 a month.

*Q*. Do they stay there the full period?—*A*. Four years is the course. Very rarely we can get them to stay for four years. They go out to bazaars and get much more money than the scholarship given by Government.

*Q*. Do you think that these classes are really of much good?—*A*. I think they are in a way. I think it is possible that they may do a good deal more good than they are doing. One would think that, considering they get their education free and after a year they are paid Rs. 5, students would be swarming in to the school, but, as a matter of fact, the difficulty with them is that they have to attend for the whole of the day, and the fathers of a good many boys will not send their sons for the whole day because they are useful to them in their workshops. And the difficulty is to get any organization by which you can give them a sort of partial education as they give to craft students in England. As a rule, the Indian people do not care about going out in the evening after they have finished work and had their evening meal. We have tried once or twice, but it has not been successful.

*Q*. Would morning classes be more popular?—*A*. We won't get them at 7 o'clock.

*Q*. Or 8 o'clock?—*A*. That may be possible as regards half-timers. I have thought of trying that, but the question has had to be postponed; but I think it is one that will be worth trying.

*Q*. Take your goldsmith or silversmith—do they get more than the goldsmith or silversmith trained in other workshops?—*A*. I think they do. I cannot state with certainty. They have learnt to draw and design, and these accomplishments should certainly add to their value.

*Q*. Don't they know drawing?—*A*. Very few can read a workshop drawing. At the School of Art all the boys have to do workshop drawing.

*Q*. Take the indigenous wood carver. Does he not draw?—*A*. He draws a few patterns.

*Q*. The indigenous artisan is limited to his work?—*A*. Yes. The students in the workshops of the school have one hour's ordinary drawing and one hour of workshop drawing. They all know how to do workshop drawing and to read a drawing.

*Q*. That is to say, the main advantage that they get from going into the school is that they are taught drawing, and they are able to do a much wider range of work?—*A*. Yes; and the workmanship of those whom we turn out from the school is very much better than the bazaar as a rule, but the drawback to it is that there is no very strict time limit imposed on a job in the school workshops, as quality of workmanship is aimed at. Time in a commercial job is a very important factor.

*Q*. In Bombay are there any recognized Indian art craftsmen who are brought up in the country system?—*A*. Yes.

*Q*. And you recognize their artistic work?—*A*. They are quite good craftsmen, but a great many of them now work in big shops in the bazaars. That is, silversmiths' shops in Kalbadevi have workshops, but very often the man who owns the shop is not a craftsman at all but simply a trader, and he gets craftsmen from all over India, and each of these men brings his own designs. All the workmen appropriate the designs of their neighbours in the workshops. The result is that a pure Indian design is now very rare. Directly they depart from their traditional designs the Indian craftsmen do not know what is right or wrong.

*Q*. These craftsmen who are employed by the traders, do they take in apprentices?—*A*. They may bring their sons, but the apprenticeship system is a very loose one in Bombay.

*President*.—*Q*. Mr. Fern is available to go out and advise these companies?—*A*. He is in Cochin at present advising the Durbar there on the clay deposits of the State.

*Q*. Supposing the Calcutta Pottery Company wanted to get his advice, could they make arrangements through you?—*A*. Yes. Government have laid down a scale of fees that have to be paid, that is Rs. 10 *per diem* and the travelling allowances under the Civil Service Regulations.

*Q*. Outside the province as well?—*A*. Yes.

## WITNESS No. 314.

### MR. R. J. VIMADALAL, *Leather Merchant, Leather Factory, Navsari.*

### WRITTEN EVIDENCE.

**Tanning industry.**

The leather tanning industry in India is not in a satisfactory condition. The finished leather turned out by the best factories of India cannot bear comparison with European or American leather. The industry is still in its infancy in India, the technical and scientific knowledge which enables the European tanner to work with improved processes is absolutely wanting. A practically trained Government expert would be of great help to the development of the industry in India. He must have done practical work, mere theoretical knowledge would not be of much use. One can get theoretical knowledge of the processes of leather manufacture from books, but when he tries to apply it to practice, he knows the difficulties. Private companies would be willing to take a loan of his services ; two or three months would be enough for the Indian manufacturer to learn from the expert the different processes in detail. The charges for the loan of his services must be moderate and must bear proportion to the size and capacity of the factory utilizing his services. Heavy charges should not debar the small tanner from profiting by the expert's services. The expert may publish the results of his work with private companies so far as general statements of manufacturing processes are concerned.

**Government expert required.**

There would be one difficulty, however, in the way of expert advice to private companies. The expert must have machines to work with to enable him to produce really good leather ; private companies would not have all the necessary machines. Expert advice, therefore, though it can do much, will not alone suffice. There should be model demonstration factories fully equipped. If the Indian manufacturer can have the benefit of seeing all the best processes of leather manufacture and the working of all the important machines, he is sure to profit immensely, and I believe that this would be the surest method to improve the manufacture of leather in India. Pioneer factories are not required, the leather industry in India is proved to be commercially practicable.

**Demonstration factories.**

**Government aid.**

I have had no personal experience in the raising of capital. I believe that money grants-in-aid and bounties would do much in developing the industry ; audit by Government would exercise sufficient control.

Bark is a principal ingredient used in leather manufacture, *tarwar* or *awal* bark being chiefly used in Gujarat ; it comes from a long distance. If the terms of Government for the supply of this bark from forests could be more favourable, tanners would get more facilities of work. The high price of bark sometimes becomes a serious question.

**Labour.**

The labour question is very important for tanners. The chief workmen are Madrasis and Khalpas or local tanners ; other castes would not do the work. The tannery processes are such that the right things must be done at the right time, delay would be injurious ; sometimes whole lots of skins are spoiled beyond repair. Workmen very often strike work at the critical point of a process ; this has been a great hindrance experienced. Government regulations should make it as easy as possible for factory owners to take steps against artisans running away or striking work, and getting them punished.

Closely connected with the labour question is the drink question. The alcohol habit has been the bane of the artisans. In many cases nearly 50 per cent. of daily earnings are spent in drinking, and their standard of living gets very low, and very irregular attendance at work is the natural result. The efficiency of the tannery workmen would be improved if this drink question could be handled. They would become more sober, more attentive to work, more regular and better fed. The more sober workman is always found to be more regular and attentive. It may be mentioned in connection with this that in places like Navsari, where Indian States and British limits touch each other, there is quite a number of liquor shops. The reduction of their number would tend to restrict the drinking habits of artisans to some extent.

**Cottage industries.**

Coming to the question of the cottage industries of local tanners in almost every village, it may be mentioned that their process of working is the crudest possible one and the leather they turn out is only good for cotton ginning factory washers, worth only about eight annas per lb., whereas the same hides better handled would fetch double the price. On the whole therefore this local tanning by Khalpas means an enormous loss to India. Either these village tanners must be taught better processes to work with, or this village tanning should be abolished.

**Reference libraries.**

Reference libraries are also to be recommended. Reference books on the tanning industry are not available in ordinary libraries ; these and leather journals would constitute useful aids to manufacturers.

**Protective duties.**

The Indian leather tanning industry being still in its infancy, I think it needs to be protected by duties, at least until it is able to stand on its own legs. The export of raw skins to America comes to an enormous quantity, and that makes the price of raw material for the Indian tanner too high. The American leather industry being very much advanced in comparison with the

Indian, Indian tanners cannot naturally compete. In almost every part of India purchases of raw goat skins are going on for America. The number of raw hides exported from British India to foreign countries comes to an average of over ten millions every year and that of raw skins to about twenty-five millions. I believe that an export duty on raw skins going to America would constitute a great aid to Indian industry. Very recently Government placed some restrictions on the export of raw skins to America and the result was a great fall in prices.

For the last year or two the price of all varieties of leather imported into India from Europe, etc., has risen quite abnormally owing to the war, a great lift has been consequently given to many branches of Indian leather manufacture. For instance, leather belting from Europe costs twice as much as formerly ; the result has been that Indian made belting has come to be in demand, and naturally the quality turned out shows marked improvement. It becomes a question for consideration therefore how much the Indian leather industry would be benefitted by import duties on finished leather coming to India from outside.

The industry of tanning extracts can, I believe, be developed in India. There are a number of forest products containing tannin, and Government research and scientific investigation can build up a tanning extract trade in India. In Europe there is a large business in tanning extracts.

ORAL EVIDENCE, 20TH NOVEMBER 1917.

*President.*—*Q.* Are you practically interested in tanning ?—*A.* Yes.

*Q.* Are you the owner of a tannery ?—*A.* One of the proprietors.

*Q.* Have you had any practical training in tanning ?—*A.* Our experience in the factory is the only training.

*Q.* You have not had any regular training in practical tanning ?—*A.* No. But we have been all along carrying on our experiments in the various processes with the aid of information from books, and have gained a good deal of practical experience thereby.

*Q.* You have never done any of the work of tanning yourself ?—*A.* I have been in the business for nearly 16 or 17 years.

*Q.* You have not actually gone into the tannery and undertaken, say, the fleshing of skins ?—*A.* No.

*Q.* Have any of your partners done so ?—*A.* No.

*Q.* You trust entirely to your workmen ?—*A.* Yes, so far as manual work is concerned ; but even there, if we are not personally able to do the work, we understand the work, we know whether a work has been well done or not.

*Q.* Is it possible then for you to improve the standard of your workmen if you are not able to do the work yourself ?—*A.* Yes, we can.

*Q.* How can you do it ?—*A.* You see the principal workmen we have to deal with are from Madras, and some are local tanners, Khalpas as they are called. The Khalpas are generally a very ill-fed people ; they are very poor, always in debt. We can improve their efficiency by education, by getting them to live better, feed themselves better, and all that.

*Q.* That is not what I mean. You cannot go into the tannery and take away a tool from a man and show him how to do his job ? That is what I mean by improving the standard of efficiency of your workmen. There is no use preaching education and better food, and that the men should give up drink, and asking the Government for assistance, if you cannot go into the tannery and take away a tool from a man and show him to do the work properly ?—*A.* That personally we have not done, but very often the workmen's inefficiency is due to indifference and carelessness ; I believe education, etc., would make them more attentive and careful, and make them work with interest in what they are doing.

*Q.* It is quite useless for the Government to try to improve the workmen if their masters themselves cannot work ?—*A.* There are the foremen and mistries who are well versed in the work ; they have personally done all the work and can guide and train the workmen.

*Q.* You are content to remain in the hands of the foreman instead of being able to train the men yourself ?—*A.* That is as far as the manual work is concerned, but all the important processes of manufacture of tanning, dyeing, finishing, chrome tanning, etc., we personally guide.

*Q.* How many hides a day do you tan ?—*A.* It depends upon the season, but generally we tan more skins than hides, ours being not a good centre for raw hides. We do about 8,000 or 10,000 skins a month ; and hides sometimes about 400 to 500 a month.

*Q.* Are you doing any tanning for the War Office ?—*A.* No ; we did something some time back.

*Q.* Why did you not continue it ?—*A.* Our place is a bad centre for raw hides and a large number were rejected. We had some correspondence about that. We have been turning out roller skins and other things for mills, for which there are short supplies from England. We were specially asked to increase the output of these as far as possible.

*Q.* You find that that pays better ?—*A.* Yes, leather dyed and finished up with the aid of machinery ought naturally to pay better than mere tanned leather, and that is work that is needed also.

*Q.* Do you remember the price you get for half tanned hides for war purposes ?—*A.* Those they are buying over here ? Yes.

*Q.* What price do you get per pound for half tanned leather ?—*A.* Re. 1-4-0 per pound.

*Q.* Does that pay you ?—*A.* That is for selected hides only ; that leaves a fair, moderate margin.

*Q.* In the Government tannery here they are doing it for Re. 1-1-6 per pound. That is what it costs when it is done by Government agency, so that Re. 1-4-0 gives you a fair margin of profit ?—*A.* Yes, but the selection is sometimes strict ; sometimes we get 12 annas and Re. 1 for rejections.

*Q.* If you don't come up to the standard of quality you get your hides rejected accordingly. This is the rate for leather turned out in tanneries under Government control, where the staff is more expensive than yours ; so you ought to make a good profit in tanning leather for war purposes. You recommend that the people ought to be taught to tan, because now the village tanners only get about 8 annas per pound for their leather, whereas if the same hides were better handled, they would fetch a better price. Why don't you set a better example by earning the better price yourself ?—*A.* We mean it would be a saving to India if these local tanners were taught better practices.

*Q.* You want regulations designed by Government to prevent strikes by workmen. What kind of regulations would you suggest ?—*A.* The Madrasis that we have to deal with have their homes in Madras, and they generally fly from one place to another. Some of these people make it a rule to take advances from here and go away to other places. I mean to say that persons who do like that must be punished in an exemplary fashion, so that others may be deterred from doing so.

*Q.* You have not thought out the difficulties in the way of such regulations ?—*A.* Those that receive advances can be tried and warrants issued. There are some mamlatdars who issue warrants at once ; it would facilitate our work if second class mamlatdars also get jurisdiction under Act XIII of 1859. Sometimes those workmen come back and rejoin work and the thing ends there. I want some punishment which must set an example to others. That may be of course elaborated.

*Q.* There are a good many practical difficulties to get over before we can discuss the matter with you. Where are these liquor shops which you complain of, on the border of Indian States. On which side of the border are they ?—*A.* These people are generally great drunkards, and the restriction of such shops might tend to do them a lot of good.

*Q.* With reference to your last paragraph regarding the development of tannin extracts in India. I suppose you are referring to Government experts being employed ?—*A.* Yes.

*Q.* Do you know of anybody on this side who has attempted to make tannin extracts ?—*A.* No, I do not think that has been done in India.

*Q.* It is being done in India right enough.—*A.* I mean to say there is no business worth speaking of in that direction.

*Q.* Very good profits are being made by a company near Raneegunge. I should advise you to take up the study of tanning yourself, and all that belongs to it.—*A.* That is why we want the demonstration factory.

*Mr. A. Chatterton.*—*Q.* Do you carry on currying and leather dressing in your own factory ?—*A.* Yes, we do that.

*Q.* Are you making leather belting there now ?—*A.* Yes.

*Q.* Up to what size ?—*A.* 3", 4" and 6".

*Q.* Is there a good demand ?—*A.* A fairly good demand now that belting from Europe is so costly. This has created a demand for Indian-made belting at present.

*Q.* Are the people who use it quite satisfied with Indian belting ?—*A.* It is not quite so good as the English, but it works fairly well.

*Q.* Are you making roller skins ?—*A.* Yes.

*Q.* Do they sell freely ?—*A.* Yes.

*Q.* Where does the bulk of your skins go to ?—*A.* Bombay and Ahmedabad.

*Q.* Are you making picker bands ?—*A.* Yes ; chrome, hairy and plain.

*Q.* Are they freely saleable now ?—*A.* Yes, they are used by the mills.

*Q.* Do you know how long an Indian picker band lasts ?—*A.* They last for about 8 or 10 days.

*Q.* How long does an English one last ?—*A.* More than twice as long.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* Is your factory a private owned factory ?—*A.* Yes.

*Q.* Have you got any managers or superintendents, or do you yourself manage ?—*A.* There are foremen and mistries and we ourselves manage personally.

*Q.* But have you any special expert in tanning ; any man with a diploma ?—*A.* No.

*Q.* Would it pay you to have such a man ; or would it be too costly ?—*A.* It would be too costly.

*Q.* Is yours a very small factory ?—*A.* Of a moderate size.

*Q.* Why did you select Navsari for your factory ? Is it because it is your own place, or have you got any special facilities there ?—*A.* It is our own place. The factory was already in existence there, and we worked it up. It was our own factory.

*Q.* Do you get raw materials very cheap there ?—*A.* No, it has no special advantages.

*Q.* Or is it because your consuming markets are at Bombay and Ahmedabad ?—*A.* Yes.

*Q.* Are you situated in the Baroda territory or British territory ?—*A.* British.

*Q.* You are making roller skins ?—*A.* Yes.

*Q.* And you supply the Bombay mills ?—*A.* Yes.

*Q.* Directly or through middlemen ?—*A.* Through middlemen.

*Q.* Why not directly ?—*A.* A firm offered us its terms as middleman and we found these suitable. This suits us better.

*Q.* Why ?—*A.* Because we can devote ourselves more to manufacturing work.

*Q.* Don't you think if you can go to the consumers direct you can save the middleman's commission and sometimes deal with them better in selling cheaper ?—*A.* We have sold outright all our output of roller skins to one firm.

*Q.* Even if it is of inferior quality the middleman takes it up ?—*A.* The quality is standard quality ; of course if it is not up to standard he may reject.

*Q.* Does it pay you better, going through the middleman ?—*A.* That saves us much trouble because we sell the whole year's contract, and contracts are often renewed.

*Q.* Do you supply the Ahmedabad mills also ?—*A.* He does that.

*Q.* Is there a new demand since the war ?—*A.* Yes.

*Q.* Before that you were not producing these roller skins ?—*A.* We did, but there was very small demand.

*Q.* I suppose you have no complaint about the Government not buying your factory's goods ?—*A.* No.

*Q.* Have you facilities for tendering your goods ?—*A.* We have no complaints whatsoever.

*Q.* If you ask for rates, Government gives them to you ?—*A.* Yes, we offer it to Government and Government takes it up at fixed rates for tanned hides. We have no difficulties.

*Mr. C. E. Low.*—*Q.* Is that suggestion about empowering factory owners to take steps against workmen when they strike a necessity for factory owners in your neighbourhood ?—*A.* It is a difficulty we ourselves have experienced.

*Q.* You don't know if anybody else finds the same difficulty ?—*A.* We hear the Bombay tanneries complain of the same thing.

*Q.* You want to place them in the same position as indentured labour in the colonies ?—*A.* No. The difficulty we experience is this. Supposing a man who has been advanced money for work runs away. He gets back to work and the thing ends there. There should be some punishment which would debar others from doing such things.

*Q.* Under certain circumstances you can bring Act XIII of 1859 to bear and send him to prison ?—*A.* Generally he is brought back and rejoins work and there the thing ends to be repeated again.

## WITNESS NO. 315.

## BOMBAY PRESIDENCY TRADES ASSOCIATION, LIMITED.

### WRITTEN EVIDENCE.

### *Financial Aid to Industrial Enterprises.*

Methods of Government aid.

The Committee are not in favour of money grants-in-aid or bounties or subsidies. They consider that guaranteed dividends for a limited period would establish confidence on the part of the public.

Government should support all such industries by the purchase of products as far as possible.

No income-tax should be charged during the period of guarantee.

Extent of Government control.

The Committee do not consider Government direction advisable but they are in favour of Government audit as they believe this latter would inspire the confidence of the public.

Pioneer factories.

From experience of certain pioneer industries in Madras, such as aluminium and chrome leather, the Committee are of opinion that such pioneer factories could be successfully established in other provinces and the same should be handed over in a manner similar to that followed in Madras.

No pioneer factory which has proved successful should be converted into a permanent Government enterprise.

Limits of Government assistance.

As soon as a venture becomes self-supporting Government aid should cease; but there should be no limitations on Government aid to a new enterprise, if it competes with an established external trade.

### *Technical Aid to Industries.*

Demonstration factories.

The following industries are suggested for which Government demonstration factories should be adopted:—

Chemicals, glass, matches, twine, earthenware articles, bottles, lamp chimneys and glass bangles.

### *Assistance in Marketing Products.*

Museums and exhibitions of cottage industries.

Museums should be developed and increased. If established, the Bombay Museum should be largely devoted to the exhibition of indigenous products, particularly cotton.

Travelling exhibitions of cottage industries would also be of advantage.

### *Industrial Exhibitions should be encouraged by Government.*

Industrial exhibitions.

They should be made attractive to the general public, conducted on the lines of a fair but at the same time educational in character.

Trade representatives.

Trade representatives should be appointed to represent the whole of India, in Great Britain, the Colonies and foreign countries. They should be first class businessmen. Their duties should be confined to the popularizing of Indian industrial productions.

Temporary commissions for special inquiries should also be appointed at the expense of Government. Provinces in India itself should have trade representatives in other provinces.

Government patronage.

The principal Government departments which use imported articles should publish lists of these articles and exhibit them in commercial museums.

### *Training of Labour and Supervision.*

Increased educational facilities required.

Greater facilities for imparting general and technical education are necessary for improving the labourer's efficiency. The lack of primary education hinders industrial development.

### *General Official Administration and Organization.*

Director of Industries.

There should be a Director of Industries and he should be a thorough businessman. If such a one be appointed, he will possess the necessary qualifications.

### *Organization of Technical and Scientific Departments of Government.*

Study of foreign methods.

Every encouragement should be given to Government experts, in consultation with consuls of foreign countries, to study conditions and methods in other countries.

### *Government Organization for the Collection and Distribution of Commercial Intelligence.*

**Commercial intelligence.**

The present method of circulating information of commercial interest to the trading community is not altogether satisfactory as far as the experience of the members of this Association tends to prove. An instance to illustrate this assertion may be found in the case of a most important circular in which was contained a request by Government for information which was not received by the Bombay Presidency Trades Association but was forwarded to another association whose members were not in a position to afford the assistance requested, whereas a good deal could have been rendered by the members of the Bombay Presidency Trades Association. This procedure is surprising in view of the fact that Government long since had given a positive assurance that all such information should, whenever available, be placed at our disposal.

**Trade journals and publications.**

Although we have found no advantage in the issue of the *Indian Trade Journal* or in special monographs or publications of Government departments, we think that Government should establish or assist industrial or trade journals, which would be of real use to persons actively engaged in industries. We would suggest that the Director of Industries might have on his staff an expert commercially-trained journalist.

### *Other forms of Government Action and Organization.*

**Prevention of adulteration.**

Penalties should be imposed for the adulteration of food products, chemicals and all pharmaceutical products which are now official in the United Kingdom. An organization similar to that in the United Kingdom would suffice for the purposes of inspection and prosecution.

**Misdescription.**

Misdescription should be visited by penalties as severe as those imposed in the United Kingdom.

**Trade marks and trade names.**

The Association's views on trade marks and trade names are set forth at some length in their letter to Government of the 15th November 1916, copy of which is appended for reference.

One of the members of this Association recently desired to register a certain trade mark but found there was no Act in force under which this could be done. On taking legal opinion he was informed as follows :—

> "Referring to previous correspondence and your instructions to us to register these medicines under the above names we have looked into this matter and have to point out that under the Controller of Patents interpretation of the Indian Patents and Designs (Temporary Rules Act, 1915) and the general law applicable to British India, trade and property names cannot be registered and medicines cannot be patented, there being no provision of law in British India for these purposes. (See the Patent Office Notice appearing from time to time in the *Government Gazette.*)
>
> "On the other hand, we believe that some people desirous of preserving evidence of the date when they began to use or market their medicines or other goods under proprietary or trade names have registered a statement regarding same at the office of the Registrar under section 18F of the Indian Registration Act of 1908. Under this Act certain documents must be registered. It has no particular application to patents or to trade or proprietary names, and such registration confers no legal right but is merely evidence of user.
>
> "If by virtue of user under a proprietary name, goods made and marketed by a particular firm come to be known to the public under that name as goods sold by that firm, so that the name of the firm and the name of the goods induce the public to buy the goods, then any third party who subsequently tries to palm off upon the public imitation goods of his own as and for the goods of such firm by the use of the proprietary name or otherwise, is liable to have an injunction granted against him. In such cases the important point is who first made and sold the goods under the proprietary name ? It is as a piece of evidence on this point that the otherwise useless registration above referred to is sometimes adopted.
>
> "There is not in India any registration system such as prevails in England for the registration of trade marks and proprietary names conferring legal rights therein and protecting the owners thereof against imitative competition.
>
> "We shall be glad if you will kindly give the matter your consideration and let us know whether or not you wish to go in for the only kind of registration possible here in such cases."

Now that Government are anxious to foster Indian manufactures and industries my Committee respectfully submit that they should bring into being a system of registration of trade marks and proprietary names such as obtains in England and which secures for the owners thereof requisite protection against imitative competition.

The legal opinion above quoted so clearly establishes the necessity for the taking of legislative action on the lines indicated that the Committee leave the matter to Government, confidently believing that they will realize the desirability of granting to the people of this country such protection against piracy of their rights as will encourage them to co-operate with Government in fostering and advancing such manufactures and industries as may be found capable of initiation and development. Without the guarantee of this protection it is but reasonable that they should be backward in embarking on enterprises which in most instances involve a considerable expenditure of brain-power and money and are liable to be exploited greatly to their detriment by unscrupulous persons who are not slow to take advantage of the law's weakness.

Registration of partnerships

The Association's views on registration of partnerships will be found in their letter to Government dated 15th November 1916, an extract from which is attached for reference.

The Committee of this Association having very carefully considered the remarks of the Hon'ble Mr. Justice Beaman in the judgment delivered by him in the Bombay High Court in the case of Dongersi Ganji and Company *v.* Jethmal Jemnadas and reported in the *Times of India* of the 16th August last, direct me to say that they entirely concur with the opinion expressed therein to the effect that early steps should be taken to render the registration of partnerships compulsory.

Members of this Association have on many occasions suffered material loss through those dishonest practices on the part of traders so strongly denounced by His Lordship and would respectfully urge Government to take the earliest opportunity of introducing such legislative measures as may be necessary to prevent their continuance. A Bill on the lines of the "Registration of Business Names Bill" which has recently been reported on by the select committee of the House of Lords (*vide* Appendix) would in their humble opinion go far towards attaining the end in view.

Furthermore, they would with due deference submit that within the scope of such legislative action it might be found possible to make provision against the use—which in their opinion is abuse—of European names by traders. This matter is one that has greatly exercised the members of the trading community throughout India but unfortunately, despite the many representations put forward by the several Chambers of Commerce and Trades Associations, Government has so far not seen its way to dealing with it.

## APPENDIX.

### *Registration of Firms Bill.*

The report of the select committee of the House of Lords on the Registration of Firms Bill states that the title of the Bill should be "Registration of Business Names" as the Bill is not confined to trading firms but includes professional partnerships. The object of the Bill being to include, not all partnerships, but only those where the style conceals the identity of the actual traders, the Committee think the most convenient limit would be expressed by requiring registration by all who do not use their true surnames to designate their business. It is very difficult to provide a means of enforcing registration which shall not be either ineffective or oppressive. The Committee propose that any one coming within the Act who does not register shall be disabled from suing on a contract made while he is in default, but that the court in proper cases shall be able to give relief from this disability. The Committee express their strong opinion that the Bill would be of special value under the conditions both of the warfare now prevailing and of the state of things which may be expected to arise immediately afterwards. Events have shown how desirable it would have been to have had at the beginning of the war and still would be to have ready to hand such information as this Bill provides, and without entering upon any controversial matter relating to trade after the war, it may be generally accepted that the identity of those concerned with trade will be in the future an element of the greatest importance. The Committee accordingly venture to submit the Bill to the House as one which ought to be pressed forward without delay.

So long as the railway companies are allowed to barricade themselves behind so many "risk notes," it is useless to express any opinion regarding railway freights, etc.

Jail industries.

The Committee have good reason for believing that jail competition has seriously affe[illegible] certain industries, such for instance as the following: Moonj mats, Deccanese dhurries, Nawa[illegible] tapes and such like articles.

### *General.*

[illegible]ons.

The Committee are of opinion that the chemical and drug industry is capable of much development and could be materially aided by the removal of duty on alcohol for the manu-
of chemicals; the leasing of land on easy terms for the cultivation of raw materials;

the assistance of Government experts, and if necessary by the granting of Government subsidies for expenditure on research work ; the cultivation of forest land for the growth of plants yielding resinous substances and their purification and manufacture for industrial purposes. They consider encouragement should be given to such industries as earthenware and iron hollow-ware for common domestic use, the importation of which articles, such as cheap crockery, kettles, saucepans, boilers, etc., incurs a freight the saving of which would alone afford a considerable measure of protection to Indian-made goods.

The Committee are further of opinion that there is room for improvement in the brewing of country beer and the distilling of spirits ; that encouragement should be given to the growing of hops and the cocoa bean ; that the Indian silk cotton tree growth and the spinning of its yield should be encouraged. At present this cotton is used only for the stuffing of pillows but machinery has now been invented at home for spinning. Buyers used to pay for this silk cotton Rs. 2 per maund, whereas the present rate varies from Rs. 6 to Rs. 8 owing to exportation charges and there being no facilities for spinning in India.

**Sugar industry.**

In regard to the sugar industry and the possibility of its development in the Western Presidency, my Committee beg to submit the following observations :—

Considerable quantities of sugar are now being imported into Bombay from Java and Japan, and the latter country is slowly but surely capturing the market which India herself should hold.

In the Bombay Presidency there are about 50,000 acres of sugarcane cultivation, while not a single sugar factory exists with the exception of a small concern capable of turning out about 2 tons of sugar per day only, the property of some Brahmin gentleman and situated close to the Government cane farm at Manjri, Poona District. From this small plant good profits were derived even before the war when the price of sugar was considerably lower through the proprietors manufacturing the sugar by the direct process, straight from the cane, which they grow themselves, as well as from canes purchased from their neighbouring cultivators and for which they paid Rs. 20 per ton.

According to the Hon'ble Mr. G. F. Keatinge, Director of Agriculture (*vide* his report on the sugar industry, dated Poona, the 24th March 1914), the principal conditions necessary for a profitable organized sugar industry in the Bombay Deccan are as follows :—

(1) Suitable soil and water facilities.
(2) Immunity from storm and frost.
(3) Cheap labour.
(4) Intelligent management.
(5) Adequate capital.
(6) An organization of some kind which enables the mill to secure for itself a reasonably certain and well distributed supply of cane and to make economical arrangements for harvesting it.

And in his report the Director of Agriculture states that in the Deccan it is only in canal areas that cane can be concentrated to an extent which will admit of the industry being organized on a factory basis, and that in these areas, however conditions are favourable to cane production, that the liability to damage from storm and frost may almost be ignored, and that the climate, soil and water admit of the production of high class cane, and further that Dr. Leather, the Agricultural Chemist to the Government of India, had a very high opinion of Pundia cane which is the cane almost exclusively grown on the Deccan Canal, and who has remarked with regard to this cane (*vide* page 18 of Bulletin No. 19 of the Agricultural Ledger, 1896) :—" I am certain that no better cane can be obtained anywhere than these." The advantages of the Pundia as given are—

(1) It needs a lot of water and will tolerate the enormous waterings given in the Deccan canals.
(2) It is a soft cane and easy to mill.
(3) It is a fairly heavy yielder.
(4) It contains a very large sugar contents (15 per cent.). The cost of cane production in the Deccan is given by the Director of Agriculture at Rs. 10 per acre and an outturn of 36 tons of cane per acre, and he is of the opinion that granted that all the conditions for cane cultivation are favourable, the chief difficulty seems to be the obtaining of an adequate block of land or to be able to guarantee an adequate supply of cane to the mill at a reasonable price, and if that difficulty can be overcome there is no doubt but that a successful sugar factory could be started.

The area of cane grown under the Nira Canal irrigation alone is 9,000 acres. Under the Mulla-Mutha Canal 5,000 acres, and these areas could supply several sugar factories of some size.

Now with regard to the manufacture, and this is of the greatest importance.

The numerous failures of sugar concerns throughout the country is chiefly due to employing wrong methods of manufacture, to improperly designed factories badly engineered and managed.

In these concerns it has been the custom to refine the raw material gur made by the cultivator, but the numerous disadvantages pertaining to the refining of gur prevent this method of manufacture from being a profitable one and unless a distillery be attached to the gur refinery in order to make spirit from the large quantity of molasses produced by this method of manufacture, thus converting the business into more of a distillery business than a sugar business, the concern is bound to close.

The chief disadvantages of refining gur may be enumerated as follows:—

(1) Owing to the canes being crushed by the ryots in inefficient cattle power mills, a large percentage of the juice is left unextracted from the cane and is burnt with the refuse cane for boiling the juice.

(2) Owing to the method employed by the cultivators in boiling the juice over an open fire, the cane sugar or sucrose, *i.e.*, crystallizable sugar, is to a large extent converted into what is known as grape sugar or glucose, which is uncrystallizable and which results in a large yield of molasses instead of sugar, and which has a considerably reduced value and can only be used for the manufacture of spirit or tobacco.

(3) Owing to the high price of gur due to the demand which exists for it in the bazaars for consumption in that state, the purchase of it for refining into sugar becomes prohibitive.

(4) To keep a gur refinery running for several months of the year, it becomes necessary to store large quantities of gur, and during the period of storage considerable deterioration takes place, the sugar in the gur being largely converted into molasses, especially during the monsoon season.

(5) Coal or wood fuel is required to run the refinery, as the crushed cane having been used by the cultivator for boiling the juice to gur is not available. The price of coal is now very high, about Rs. 20 per ton, and as the gur refinery is not situated in the centre of the cane cultivation, freight charges for conveying the gur to the refinery have to be paid.

(6) In order to refine the gur and turn out white sugar, it is necessary to filter the gur liquor through bone char, which process is obnoxious on account of religious principles to a large section of the Indian people.

The advantages of manufacturing sugar direct from the cane, whereby sugar manufacture is made a profitable business and as carried out in other countries, such as Java and Mauritius, which dump their sugar into Bombay, may also be mentioned:—

(1) The maximum quantity of juice is expressed from the canes by means of powerful steam driven mills whereby the canes are crushed several times in succession.

(2) The juice as it leaves the mill is at once limed to neutralize acidity and so prevent the formation of molasses, bleached by the application of sulphurous acid gas in order to obtain white sugar, clarified, filtered and evaporated and boiled into sugar under a vacuum in order to further prevent the formation of molasses. It is then spun in the centrifugal machines in order to remove the molasses and the maximum quantity of sugar is turned out ready for the market. The molasses from this sugar is reboiled to make a second quality, and even a third quality of sugar is produced.

(3) The cane refuse or crushed cane is utilized for generating the steam required to run the factory, and specially constructed boiler furnaces in factories designed for the most economical working, no other fuel being necessary.

The factory is situated in the centre of the cane cultivation.

(4) The use of bone char is not required by the direct process of manufacturing sugar from the cane.

From the foregoing it will be evident that the refining of gur should only be attempted when the quality of gur is good and the price low, and this is a difficult thing to obtain when there is a good market for the gur for consumption in that state.

The numerous failures of improperly designed concerns throughout the country and the lack of knowledge which prevails regarding sugar manufacture makes it imperative that the Government employ an expert, and this has already been recognized in the United Provinces, the Director of Agriculture, Mr. Halley, stating in his evidence before the Industries Commission in November 1916 that "The really essential thing is that the various Governments should have at their disposal a rather larger number of expert advisors such as the sugar engineer in these provinces who can advise on the projects put before them."

The price of sugar as now given by the Bombay Food Price Committee is Rs. 22 per cwt. or Rs. 440 per ton.

An increased tax of 10 per cent. was levied on imported sugar in the last budget of the Government of India.

There is now no bounty fed continental beet sugar competition, and the present is an opportune time for projects to come forward and be considered by Government.

In order that such projects for the establishing of sugar factories in the Bombay Presidency be successfully carried out, this Association are of opinion that Government should also render assistance as follows :—

(1) By subsidizing at least the first factory.

(2) By obtaining the necessary tract of land for cane cultivation and giving to a company at a nominal rent.

(3) By giving the services of the officers of the Agricultural Department for supervising the cane cultivation.

(4) By supplying canal water at nominal rates.

In statistics giving the cost of production at three typical Java mills, the Director of Agriculture, Bombay, shows the profits on a share capital of 9 lakhs to be 45 per cent., and the cost of sugar production is given as follows :—

| | Per ton of white sugar.<br>Rs. |
|---|---|
| 9·65 tons of cane at Rs. 4·10 required to produce one ton of sugar .. | 39·56 |
| Cost of manufacture .. .. .. | 30·84 |
| Cost of interest on capital borrowed for cane and sugar production, commission, marketing and taxation. | 47·21 |
| Total .. | 117·61 |

Sale price = Rs. 169·27 per ton of sugar.
Net profit = Rs. 51·66 per ton of sugar.

Calculating in a similar manner, using figures which apply to conditions prevailing in the Bombay Deccan, taking 10 tons of cane to produce one ton of sugar, the price of cane at Rs. 10 per ton, the cost of manufacture at Rs. 40 per ton of sugar and interest on capital borrowed, etc., at Rs. 50 per ton of sugar, the cost of sugar production works out as follows :—

| | Per ton of white sugar.<br>Rs. |
|---|---|
| 10 tons of cane at Rs. 10 required to produce one ton of sugar.. .. | 100·0 |
| Cost of manufacture .. .. .. .. | 40·0 |
| Cost of interest on capital borrowed for cane and sugar production, commission, marketing and taxation. | 50·0 |
| Total .. | 190·0 |

Sale price = say Rs. 400 per ton of sugar.
Net profit = Rs. 210 per ton of sugar.

In conclusion, this Association beg to point out that previous to the war, Mauritius, which is an island in the Indian Ocean of only 795 square miles area but on which there exist 80 sugar factories turning out 200,000 tons of sugar annually, dumped the bulk of this sugar into Bombay, while all the cane cultivation and sugar factories on the island are worked by Indian labour.

It is the opinion of this Association that if the Government now gives the necessary assistance suggested, there is no reason why in a few years' time there should not be a Mauritius in the Bombay Deccan.

*( Oral evidence was not given by any representative of the Bombay Presidency Trades Association. )*

## WITNESS No. 316.

### MR. JOHN WALLACE, C.E., *Editor, "Indian Textile Journal," Bombay.*

### WRITTEN EVIDENCE.

### *Training of Labour and Supervision.*

As the object of the Indian Industrial Commission is the development of the industrial forces of India in order to produce such merchantable goods as are required for home consumption or export, I think I can best serve their purpose by stating my impressions after an experience of thirty years in India in building construction mechanical work and technical schools. India's most urgent need at present is an industrial population whose efficiency shall compare favourably with that of the peoples who have hitherto supplied so many of her material wants. Our industrial population is notoriously inefficient and the first consideration is to find a means of educating our workers in the essential knowledge of their duties, within a reasonable time, and within the available limit of necessary expenditure. The most popular project of technical education at present seems to be the opening of special factories in which the arts of producing certain articles of merchandise are to be taught to ignorant workmen. The articles are of course things that are in considerable demand, and the work must be of a technically educative character. The word "technical" as here used has nothing to do with science. As the factory is a school the men must leave as soon as they acquire the desired efficiency, to give place to other ignorant men, and the quality of the product of this factory will bear the impress of imperfectly trained men. It may have to be sold at a loss. A really skilled craft would take at least two years to acquire and many factories would have to be opened to make any fair impression on an industrial population that has been estimated at 25 millions. The railways have trained their own workmen, but once trained, they have retained them by good pay and good treatment; thus any losses incurred during training were easily recovered, but their training did not influence other trades outside of the railway workshops. The training of an industrial population is a work against time, for it is urgent; the factory schools would have to be very numerous and would have to be staffed by specially trained teacher-foremen skilled in the arts of imparting knowledge in the language of the pupils who would of course expect at least a living wage while learning the trade. There is no such class of foremen in India, and it would be useless to begin business without them, for the period of training of their pupils would depend very much upon their abilities. It has been usual to place a smart workman at the head of an industrial class on the assumption that he would make his pupils as good as himself. It is only in rare instances that he does; as a rule he simply perpetuates the defects of his methods of work without a thought of any improvement.

A competent teacher of handicraft must be able in clear and simple language to give a good reason for every movement made in the performance of any operation, giving special attention to the economy of time and of muscular effort that are wasted to such a deplorable extent in India.

As the success of the factory depends so much on the qualities of the foreman his training appears to be the first consideration, and the amount and quality of his instruction will have an important influence on the success of the scheme. He may be just as easily over-trained as under-trained. In the former case the training takes more time, costs more to the State and renders him dissatisfied with the pay of his position. This was the result of an experiment at the Poona College of Science. A number of young men were trained to be technical school teachers, but as their training qualified them for much better pay than that of their intended place in schools, they found good positions elsewhere. For the present purpose a very moderate amount of instruction of the right kind given to the right man will fully serve the purpose. It is not necessary to teach the man a trade as well as to train him in the arts of instruction; it is far better to begin with young men who had worked for some years at a trade and given proofs of ability and intelligence; they have by this time acquired the workshop point of view, to which all technical instruction should tend. A year's training in practically applied geometry, demonstrating at the black board, simple drawing, simple arithmetic, and the tempering and sharpening of tools would qualify a man for his duties and put him in the way of improving himself further. This man would carry into any workshop the only kind of instruction that the average Indian workman is capable of assimilating. The incompetence of workmen and foremen in India adds greatly to the cost of establishing manufactories; machinery is broken or worn out for lack of adjustment, and the material that is damaged or spoilt adds much to the cost of the undertaking. It would be necessary to provide these foremen with a living wage while undergoing their year's training, but the total cost would be much less than that of the experimental factories that have appealed so much to popular imagination. An intimate knowledge of the faults of the Indian workman as they exist at present is the only safe point of departure in the work of his reformation. The instruction to be generally effective must be on a non-literate basis like that used by the railways in the training of their adult men. The training of foremen is an alternative for the factory school but their sphere of activity would be in ordinary factories where work is now carried out without effective supervision. The above is the most rapid and economical method of reforming the ordinary workman but the great work of industrial regeneration must begin in the primary schools with a thorough inquiry into the results of primary education upon the subsequent career of the children whose only instruction is obtained in these institutions. The very large proportion who forget all they learned in a very few years indicates a serious lack of utility in what they were taught and explains the indifference of the parents towards education in general. Is the village boy trained to take an intelligent interest in the things he sees around him; is his legitimate curiosity aroused regarding plants and animals? It is only rarely that a labouring man, skilled or unskilled, knows anything definite about the nature of cutting edges, the strength and durability of woods, the care of injuries, the preservation of drinking water, the dangers of flies and vermin, the art of freehand drawing, the holding power of nails and screws, the proper use of the plumb line and plumb level and other useful things, many of which may be learned in a single lesson and which produce an alertness of mind that is so valuable in after life. This kind of instruction demands an entirely new class of primary teachers adequately trained and paid, and until primary instruction is compulsory, the boy will not be allowed to stay long enough at school to learn the most necessary things and also reading and writing which belong to a more advanced stage.

Among the subjects suitable to be taught in primary schools are basketry, cane and rattan work, matting, straw braiding, the sharpening of knives and tools and their appearance as seen through a strong lens, the germination of seeds, knotting and splicing of cords. The subjects would of necessity vary in rural and urban schools owing to the diversity of occupations, but in the cities the existing excess of clerical workers who cannot find employment should emphasize the claims of the instruction that leads to employment in the handicrafts. The distinction between industry and commerce is only vaguely understood by many men who talk publicly upon education; these are the men who find in the technological institute a short cut to national success.

What India needs is trade schools whose course of instruction is very carefully based on the actual needs of the trades taught and without overloading the boys with a multiplicity of subjects. They should leave the schools in condition to continue their own education in any desired line.

Research institute

A research institute is a very expensive establishment and unless thoroughly fitted and staffed there had better be none at all. Much of India's research work can be done more cheaply in England than here. One research institute should suffice for all India, for the country is already provided with many laboratories where ordinary tests and analyses can be made.

In the present state of industrial India a very limited number of highly trained scientific men can find employment, but the need of reliable and intelligent workmen is so great as to call for the utmost effort of the Government to assist them in acquiring a knowledge of their duties.

### *Laws and Regulations relating to Patents.*

The Patent Laws.

I have had 25 years' experience in drafting specifications for inventors. The inventors I have had principally to deal with belong to the class who have been trained in the workshop and had no scientific education; they experiment by guess and trial, generally without drawings, but their devices indicate an inventive faculty that is worth developing with the right kind of training. Their position brings them into intimate contact with methods and appliances that are in need of improvement, but they know little or nothing about patents, they are very often too poor to pay the cost of protection and they ask for financial assistance.

A college education does not seem to develop the inventive faculty; it seems rather to throw the student back on his text books than to the consideration of his problems in terms of work, cost and materials, putting the responsibility of the problem on the text book.

Of the two classes, the workshop trained man seems to hold the greater promise of inventive originality of a useful kind although he cannot be expected to produce epoch-making discoveries. I therefore think that he is well worth such assistance as he might obtain from the kind of non-literate instruction that is indicated in my previous remarks. In his interest I would draw your attention to a modified patent law already adopted by Germany and Japan giving protection for "utilities," that is to say, devices of minor importance at a reduced rate, and for a period that in Germany is, I believe, six years and in Japan ten years.

In view of the urgent need of a revival of what are known as cottage industries to meet the present requirements of the country, and to serve as a nursery for the higher crafts, I think the "utilities law" would be worth a trial even if it should throw a good deal of extra work on the Indian Patent Office. But it would be useless unless its existence and purpose were known and explained in all trade and industrial schools.

There is an enormous field in India for inventions of a labour-saving kind, for there are few operations of the Indian craftsman that do not involve a waste of physical labour and of time. The chief object of his education should therefore be to cultivate and promote the habit of rational thinking with regard to his work.

If a utilities law, properly advertised, could help to arouse in his mind somewhat of the alertness of the Japanese, of which we have now such abundant evidence in our bazaars, it would need no further justification, for the mental reform of the Indian workman is the foundation upon which the industrial reorganization of the country will rest.

( *Mr. Wallace did not give evidence* )

## WITNESS No. 317.

Mr. H. O. B. Shoubridge.

MR. H. O. SHOUBRIDGE, M.I.C.E., *Sanitary Engineer to Government, Bombay, Poona.*

### WRITTEN EVIDENCE.

*Note on the purchase of Stores by Government.*

Publication of lists.

There is no objection to lists being published of imported articles but these lists should be compiled by the authorities in charge of the commercial museums. The Superintending Engineers can quite easily send copies of the indents to the museum authorities. The compilation of a combined list would probably entail an enormous amount of labour on Superintending Engineers' and Secretariat offices.

Exhibition of articles.

The proposal to exhibit such articles in commercial museums will in a large number of cases be impracticable. For instance, it is impossible to order duplicate sets of engines and pumps, expensive meters such as Venturi meters with self recording apparatus, etc., etc. If such exhibits are made they must be confined to simple and inexpensive items comprised under the term "imported articles."

In cases where these articles are already manufactured in this country there appears to be no necessity to exhibit similar imported articles.

In all cases the commercial museums should pay for all samples including cost of carriage, etc. I am doubtful however whether there will be any practical benefit derived from the institution of such commercial museums.

System of purchase.

I am of the opinion that the present system relating to the purchase of stores by Government departments leads to great delay and prevents the majority of firms of repute establishing branches in this country.

I am of the opinion that the Director General of Stores should have representatives in all the important centres in India such as Bombay, Calcutta, Karachi and Madras. When articles are required, the local branches of English firms and local manufacturers should be called on for tenders, and also the Director General of Stores should be asked to tender through his local representative.

If then the latter is in a position to offer a better quotation than the local branches of English firms or the local manufacturers, he should be instructed to prepare an indent and arrange for the supply of the articles. A reasonable time must be allowed for all these parties to tender, as they will probably require to cable to England for prices. When designs are called for, the period will require to be even longer.

In deciding on which tender should be accepted due consideration must be given to the period required for the supply as quoted.

The system of Government inspection of local purchases must be extended as the local purchases themselves extend and the articles imported by the Director General of Stores' representative should be equally open to inspection. For heavy articles this could probably be conveniently arranged for at the docks during unloading.

The above are suggestions to which there may be no doubt several objections, but I believe a practicable proposal can be evolved somewhat on the lines indicated above.

### ORAL EVIDENCE, 21ST NOVEMBER 1917.

*President.*—Q. You have concentrated your attention largely on the question of the purchase of stores. In your written evidence, half way down you say, "I am of the opinion that the present system relating to the purchase of stores by Government departments leads to great delay, and prevents the majority of firms of repute establishing branches in this country. I am of the opinion that the Director General of Stores should have representatives in all the important centres in India, such as Bombay, Calcutta, Karachi and Madras." You mean by the Director General of Stores, the Director General at the India Office?—*A*. Yes.

*Q*. You don't mean a new Director General in India? How would it work if you had India Office representatives with their subordinates here? They would not be subordinate to the Government of India, would they?—*A*. They would be agents to the Director General of Stores.

*Q*. And they will be independent of the Government of India?—*A*. Yes.

*Q*. Would it not be simpler for the Director General of Stores under the Government here to have his agents in different parts of the country purchasing what can be purchased in the country, either manufactured here, or purchased through the representatives of the home firms, handing over to the Director General of Stores at the India Office the residue of the indents that could not conveniently be purchased here?—*A*. That I think means that the local officer cannot deal with a firm direct. My idea was that a local officer could go to the local firms' representatives and discuss matters with them, point out exactly what he wants, and get them to modify his plans, or may himself modify his plans after discussion with the firm itself.

*Q*. The local purchasing officer you mean?—*A*. I mean the district officer could discuss the matter with the firm who is supplying a special class of material or article. I do not like the idea of anyone coming between him and the firm.

*Q*. Would you avoid that by having the local representatives of the India Office at Madras or Bombay?—*A*. You would not do away with it altogether, until we can get all firms represented in this country. We cannot help it.

*Q*. But you are confusing two or three issues now. The question of purchasing from firms with representatives here is independent of the proposition as to who should do the purchasing. We can discuss those separately. What I want to know is, why is it you want representatives in Madras, Bombay and elsewhere, of the India Office, instead of representatives of the Government of India?—*A*. I do not think I really went into that point, as to whom the representatives should be under.

*Q*. Officially it makes a great deal of difference whether the India Office has got local buying agents here, or the Government of India.—*A*. I had it in my mind that the India Office should not give up its control over the purchase of stores entirely.

*Q*. Presumably the India Office sticks to this so-called privilege, because it is also an advantage to the Government of India to have at home one authority for the purchase of stores that authority also having the expert staff to inspect the stores before they are despatched: but if you can buy anything in this country, why cannot the Government of India itself organise its own buying agency?—*A*. I do not think there is any objection to that.

*Q*. You don't mean to suggest that it is an advantage to the India Office to have its own representatives out here?—*A*. Not necessarily. I rather want the rule that you must go to the Director General of Stores modified so as to encourage more English firms to set up out here.

*Q*. There is a certain advantage in having representatives of home firms in India, because these representatives of home firms can meet the requirements of the country more perfectly than would be done if purchases were made entirely at home.—*A*. That is my idea.

*Q*. That evidence has also been given by other witnesses. Then following up that, you don't see any disadvantage in the Government of India having its own purchasing officer here, a sort of Director General of Stores for India, with purchasing officers at Bombay, Calcutta, Karachi, Madras, *etc.*? You would not limit it to Bombay, Calcutta and Madras?—*A*. No, that is merely a suggestion. I was thinking more of things that had to come out from England.

*Mr. A. Chatterton*.—*Q*. Following up the idea that we have local Directors of Stores to whom indents would be sent, will it be necessary to establish commercial museums? Won't each office of the local Director be for all practical purposes a museum?—*A*. By "museum" would be understood that the Director has to have actual articles there. He could equally well have it in the form of a catalogue.

*Q*. But if there is created in India an official organisation for the purchase of all locally made stores would there not be a gradual transition from articles imported to the same class of articles manufactured locally?—*A*. Then we are empowered to buy direct now.

*Q*. But you say that there should be commercial museums?—*A*. I said there was no objection, did not I? I am not very much in favour of them.

*Q*. Is there any necessity for them, if you have this local organisation purchasing stores, and with a department very intimately in touch with what is going on in the country in regard to local manufactures and stores, machinery and plant imported by agents of foreign firms?—*A*. I do not see the necessity for a museum, I must say. I am not opposed to the idea, if it is going to do other people any good.

*Q*. Do you think it would do people any good?—*A*. I said it must be confined to simple and inexpensive articles. At the present moment most of my work will consist in purchasing pumping machinery and piping. You could not keep duplicates of pumping machinery in India; you could keep samples of small articles, but there must be a large number of articles which you could not keep in India. For such articles we should refer to catalogues.

*Q*. A commercial museum is not intended to be a mere show. It would be of interest mainly to those engaged in manufactures. For instance, in the case of the pottery trade, the manufacturers of pottery would surely be more intimately in touch with what is going on abroad than the curator of the museum, but unless the museum was kept up to date, they would only find antiquated types of ware exhibited which would not be of any practical use to them?—*A*. It would be quite possible that the manufactures would not be up to date.

*Q* Therefore it would be rather harmful than advantageous?—*A*. Possibly.

*Sir F H. Stewart*. *Q* I understand that your point is that this list of imported articles will be so long and takes so much time to compile that Superintending Engineers' offices could not possibly deal with them?—*A*. My idea was that it might give the offices a lot of extra work.

*Q*. They would not have the time or knowledge, but if a local department came into being they could publish the list?—*A* Yes, that is more or less what I said; it should be compiled by the authorities in charge of the commercial museums.

*Q* But according to your evidence you have not got much faith in commercial museums?—*A*. I presumed at the time that commercial museums would be instituted, and probably would be under the same officers.

*Q*. Even so, it would be better done by the Government Stores Department?—*A*. Yes.

*Mr G. A. Thomas.*—*Q*. I gather you are not in favour of these commercial museums, but if they were introduced, one of the effects at any rate would be to show indigenous manufacturers the class of articles which they would be required to manufacture?—*A*. That I think is the main object.

*Q*. Then you would have to show the prices of the imported articles. It is no good showing him what he has to manufacture unless he knew the price. Do not you think there would be great difficulty in putting on the price? What price would you put, the f. o. b., or the price landed in Bombay?—*A*. The price landed in Bombay.

*Q*. It would be more useful to have *ex*-godown prices. Don't you think that home manufacturers would object to their invoice prices being exposed to the public in commercial museums? Would there not be a strong objection to it on their part?—*A*. They might object, but it cannot be helped. We must get competition out here.

*Q*. Do you think Government would be justified in publishing the invoice prices?—*A*. That is a point I have not gone into. It is a thing we all want to get at, *viz.*, the prices, and what various people charge. I daresay firms might object, but I do not see that they have any real grounds for objecting. If their articles are cheaper than somebody else's, and of good quality, they need have no fear about publishing the price.

*Q*. Later on you refer to local purchases. You say, " The system of Government inspection of local purchases must be extended as the local purchases themselves extend." Do you propose to maintain a special inspecting staff?—*A*. Yes.

*Q*. Under whom would they be?—*A*. I presume there would be one central authority, say in each big town like Bombay and Karachi. I think at the present moment the inspecting officer is a railway officer in Bombay. I am not certain.

*Q*. He inspects local purchases only?—*A*. He inspects others as well, I believe, if he is asked to.

*Q*. Would the same officer inspect articles imported by the Director General of Stores representatives?—*A*. Yes, I think that is also desirable.

*Q*. I presume the articles are inspected by someone of his staff before they come out, and you would have a second inspection when they come out. Would not certain difficulties arise if the inspector here did not pass the articles?—*A*. That cannot be helped; if the article is not right, it should be pointed out.

*Q*. Is that not done at present?—*A*. We do not take the trouble to point this out. We have got the article out here and have to put up with it.

*Q.* Could you quote specific instances in which articles received here were not up to standard?—*A.* There are cases of article coming out which I would not pass myself in certain respects.

*Q.* In respect to quality?—*A.* It might be a question of finish; for instance, I can give you a case in connection with certain gates I ordered. It is a small point, but it ought to have been pointed out. There were wheels on the side of the gates in rectangular slotted holes. These holes were shown as truly rectangular: when they arrived out here the slots had been drilled out and the projections left over between the drillings had never been chipped off. It was not a class of work that I would have passed. That was passed by the inspectors at home.

*Q.* What did you do with them when they came out? *A.* The defect did not prevent the gates working all right.

*Q.* What happens in the case of an article that is found to be too inferior on arrival; is it sent back home?—*A.* I have not had an article too inferior to use. I have not had much to object to in regard to quality. My main objection is the delay in getting things. The articles we get from England, from what I have seen, are far superior to those of local manufactures.

*Q.* Then you would give the local inspector the right to reject things from the Director General of Stores and send them back to England?—*A.* If they were as bad as that he would have to have the power. I presume they would not come out so bad.

*Q.* The fact that you had a local inspector would help to improve the quality?—*A.* I think it would prevent things like what I pointed out, if they knew that somebody else was going to inspect the things. The local inspector would have very much more power in pointing out things which he did not consider were correct.

*Q.* The main object would be to supply some check?—*A.* If you are going to purchase direct from firms in Bombay, you must have local inspectors.

*Q.* But your inspector is not only to inspect local purchases, but articles sent out by the Director General of Stores?—*A.* I take it that firms would point that out at once. The Director General of Stores should not be in a position to send out things without subsequent inspection, while the firms' goods are subject to inspection. To make things equal the articles sent out by the Director General of Stores must be liable to the same inspection.

*Sir D. J. Tata.*—*Q.* How far have you been able to secure your own requirements locally in your own line? Have you managed to secure anything locally?—*A.* In what way; in machinery?

*Q.* Machinery, stores or anything?—*A.* Machinery, I do not think. Since I have been in my present appointment we have had all construction stopped, on account of the war, so I have not had much experience in that way. As regards irrigation work, which I was on before, I have obtained things locally, but certainly if there was plenty of time, I was always in favour of getting them through the Director General of Stores, because there is no doubt that the articles are good that we get out. I am talking of sluice work for dams and weirs.

*Q.* Were there no indigenous manufactures of these things in the country?—*A.* There are. There are two or three firms in Bombay that will construct similar articles, but I do not consider the quality is up to the English standard. It may be good enough.

*Q.* In view of the orders of Government that all stores, and everything possible, should be purchased in this country, if they serve the purpose, would you not try to give them a chance?—*A.* When I was purchasing, I think the order was that we had to indent for all stores from England. It is sometime ago since I was an executive officer, some 6 or 7 years ago.

*Q.* You have got to indent upon the Stores Department?—*A.* My impression is that we were bound to indent from England, unless for reasons of urgency, when we bought them locally for want of time.

*President.*—Those rules have gone. It is no use discussing that.

*Sir D. J. Tata.*—*Q.* You say, "I am of the opinion that the present system relating to the purchase of stores by Government Departments leads to great delay, and prevents the majority of firms of repute establishing branches in this country." Don't you think it also discourages indigenous manufactures to some extent?—*A.* It may, certainly. I would not like to say "yes" or "no", as it is a subject I have not studied. It is quite possible, however, that it does.

*Q.* If no attempt is made to purchase things here, people are not encouraged to manufacture the things required. But if enquiries are made in this country, it would promote the manufacture of those articles. Would it not?—*A.* It is quite possible. I look upon that as wholly a question of price. I think for a very long time we shall have to go to England, on this side of India.

*Q.* For what?—*A.* For iron work, because the question of carriage by rail comes in. I do not think your own works can compete with English articles imported by sea to Bombay or near Bombay. I may be wrong; simply on account of the sea freight being so much cheaper.

*Q.* As it happens, they do compete, and we are able to supply the Bombay market?—*A.* Now?

*Sir D. J. Tata.*—Not now, even before; because the railways have given special facilities.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* In your second paragraph you say, "If such exhibits are made they must be confined to simple and inexpensive items comprised under the term 'Imported articles.'" Is it because you think that big engines will be too bulky for a museum?—*A.* It will be too expensive for one thing.

*Q.* And there is no possibility of making them here?—*A.* There is a possibility in time. At the present moment I do not think there are any firms that manufacture pumping machinery to any extent. They are beginning to think about it I know, because I have had tenders from a firm in Calcutta, which put up a design for an engine which was to be manufactured locally. In the opinion of the Mechanical Engineer to Government it was not a suitable design.

*Q.* Unless these articles are manufactured, how are Indian manufacturers to know what improvement is needed in an article?—*A.* I should hope the local manufacturer would improve things himself, without knowing what other improvements are going on elsewhere.

*Q* How can he know what the Government wants?—*A.* He can always discuss things with the local officer.

*Q.* Then about the department for indenting for these articles, do you think local Directors of Industries would be able to manage the department locally; whatever articles can be produced here they can easily buy, because they know where it is manufactured. They will have their department up to date, and know where these articles can be made, and whether they can be had in this presidency:—*A.* I do not follow your question.

*Q.* If the purchasing Department of the local stores is under the local Director of Industries, do you think he would be the proper officer to manage that department?—Under the present circumstances the indents are sent to the General Stores Department, aren't they?—*A.* Yes.

*Q.* But if a local officer is appointed here, do you think he will be the proper agency through which the stores can be purchased?—*A.* For home stores? My object is to let the local officer deal direct, if he can, with firms in Bombay. He would treat the Director General of Stores as a local firm, except that the Director General of Stores' representative would have all the firms in England not represented out here behind him.

*Q.* And he will be able to purchase local made articles?—*A.* I am only referring to articles not manufactured locally, and to local branches of English or foreign firms.

*Q.* He can deal here directly?—*A.* For local manufactures he can deal direct. I see no object in introducing anybody between him and the manufacturers.

*Q.* But the present system you say causes great delay?—*A.* The present system of indenting on England is very lengthy. No indent can be sent which does not allow of a delay of six months. It was the rule—I may be wrong—that six months were to be allowed for the supply of articles. I have never had anything sent out in six months. I always indented in the hope that I might get the articles out in a year.

*Q.* What has been the longest period?—*A.* About a year, I think, speaking from memory.

*Q.* Is the work delayed accordingly, or have you to send the order very much in advance?—*A.* You have to send very much in advance. That was my principle. The moment I got my instructions to start work, I sent in the indent for all the sluices which I knew I would not want for a year or year and a half. I had to get designs out from England, which had to be approved first.

*President.*—*Q.* You fortunately were not transferred before the articles arrived?—*A.* No, I saw the work through from start to finish.

*Mr. C. E. Low.*—*Q.* You stated that at present officers out here have a fairly free hand to purchase articles manufactured in the country. But we have had a considerable amount of evidence before us, both direct and indirect, that that condition is not fully complied with and the indents which have come forward recently, and have been dealt with by the Munitions Board, show that, as a matter of fact, there are very considerable quantities of articles habitually being obtained from England which could have been made in this country: small articles mostly. Do you think the device you suggest of making the representative of the Director

General of Stores a competitor, with other supply firms in this country will have the desired effect of getting things made in this country?—*A*. It was not suggested with that idea at all, but simply on account of the convenience of the consumers. My idea is that there are certain articles which will never be manufactured out here, or if they are, not for a very long time to come.

*Q*. I don't want to enter into the question of the advisability or otherwise of buying direct through importers. I am talking about the purchasing of articles which are made in this country, or can be made.—*A*. My evidence is not intended to touch that at all.

*Q*. You say you have never found an article, even if unsatisfactory, so bad as to be rejected?—*A*. No.

*Q*. Can you say the same thing about articles manufactured by local firms?—*A*. I have been able to go down and inspect them during manufacture and see them tested, and point out where changes have got to be made. I have never absolutely rejected articles; I have rejected parts sometimes.

*Q*. Have you rejected piping?—*A*. I have never bought piping, except "specials."

*Q*. You have not bought pipes and found that they have not stood the pressure they were purchased to resist?—*A*. No, I have not done enough in that way to give you an opinion.

*Q*. In regard to commercial museums, would it not be the case that the only thing that commercial museums could show with advantage would be the products of unorganised industries, because the organised industries, unlike bazaar industries, could find out what was needed from the local Department of Industries?—*A*. That is quite possible.

*President*.—*Q*. Your idea is that there should be more local purchasing of articles that are imported from home, in order that firms may be encouraged to have their branches here?—*A*. That is my main object.

*Q*. Going still further, you think it would be a greater advantage if, instead of purchasing from those firms, we should do something more towards manufacturing the articles in this country?—*A*. Certainly, if you can get the quality.

*Q*. The fact that those firms are here and know the requirements of the country would encourage them to set up manufacture here of the very same articles. Would that not necessarily follow from firms coming out and setting up their selling branches here; would they not pass into manufacturing branches?—*A*. I fancy a great many would, because they would be saved the trouble of getting the things from England.

*Q*. Also they would be able to see the wants of the country and estimate requirements on a scale sufficient to warrant their organising works. That being so, could you not answer Sir Fazulbhoy's question that the local purchasing officer ought to be an officer who should be answerable to the Director of Industries in the provinces, if there is such a Director. Our first aim is the development of industries, and consequently the purchasing officer must be a man who purchases or is able to purchase from home, but he first of all takes care that that article cannot be manufactured here. Would that not be his duty first to see whether the article could be manufactured in the country before purchasing from anybody at home? That was the point of Sir Fazulbhoy's question.—*A*. It is a little difficult. I do not want to take that power away from the local officer.

*Q*. The local officer being what?—*A*. The local Executive Engineer.

*Q*. But if you allowed every local Executive Engineer to purchase what he wanted from a local firm, don't you think we should soon create a big menagerie of white elephants; don't you think that if the local Executive Engineer has a fancy for a particular brand of article and buys that article, no local firm is going to discourage his buying it? The next man who comes in has different ideas, and sets to work to buy from another local representative; at this rate we should soon start a local museum of articles.—*A*. I do not think you should fear that exactly.

*Q*. Would it not be better if the purchases were made by some provincial controlling officer who would consult the district officer as to what he wanted, but at the same time would exercise a certain amount of control over that district officer as to what he ought to buy?—*A*. If you can get a controlling officer who is perfect, I would say certainly.

*Q*. It is easier to get one controlling officer who is perfect than a lot of local officers, who are all perfect?—*A*. But you have got an expert here now in the case of machinery; the Mechanical Engineer to Government, who is responsible for the design of any pumps which are put in under schemes prepared by me. He is only one officer.

*Q*. He would be the principal officer under the Director of Industries for buying pumps?—*A*. He is still liable to be overruled by the Director. That is a point which I do not think is desirable.

*Q.* Somebody must be boss. When two men ride a horse one must ride behind?—*A.* I know, but I am not certain that the local Director would be the best man to put in. He cannot know everything.

*Q.* Still you have specialists who advise you. If the Director of Industries does not consider that that advice is sound, he consults the Government of India, the Director General of Industries if you like to call him so?—*A.* You would probably introduce what they have got in England, Consulting Engineers. They are not always perfect.

*Q.* They act as good brakes?—*A.* I know in the case of one indent we sent home that the opinion was given by the Director General of Stores that our designs were not suitable, and another firm's designs were suggested. The Chief Engineer wrote back that, as they could not supply according to our design, he would have the articles made locally. That was the opinion of the Consulting Engineer, which we did not agree with.

*Q.* The Consulting Engineer at home would not know the requirements of India, but the Consulting Engineer out here would be a man with wider knowledge?—A. That was a purely local condition.

## Witness No. 318.

Mr. L. M. Deshpande.

Mr L. M. Deshpande, *Chairman of the Board of Directors of the Deccan Match Manufacturing Company, Limited, Karad.*

### Written Evidence.

apital.

I have some experience of raising capital for the match industry and I am of opinion that people are very unwilling to invest their money in industrial enterprise. They think that it is no investment, which is unfortunately very true under the present circumstances and whenever they contribute anything they start with the idea that they have made a gift. The public has such a distrust about industrial enterprise and so whatever small savings they have they invest in land. Investment in lands can be made in small sums even and so people who can afford to go on investing such sums. Another advantage is that the management of their investment is in their own hands and to this is to be added their knowledge of the business.

An industry like that of matches requires a large amount of capital. The management is to remain in the hands of persons other than these small contributors. Business is quite new to them as well as to those who work the factory. Industrial enterprise does not appeal to people who have very small savings to invest. To attract people to invest money in industrial concerns, assurance must be given, firstly, about the safety of their investment and, secondly, about the interest. If they get such an assurance in the case of some new concerns and if they are convinced that there is very little probability of the concerns being failures, the need of assurance will cease to exist and people will start business solely on their own responsibility.

overnment assistance.

The people have implicit faith in the Government and so such an assurance if it comes from Government—call it guarantee—will be extremely valuable. What sort of assurance is required for a particular industry has to be determined on the merits of each case. But new industries will not stand the present keen competition unless Government come to the rescue of the persons who start such concerns. As far as the match industry is concerned Government aid may be given in any of the forms suggested in paras 1, 2, 3 and 6 of Question No. 5. The Bombay, the Madras and the Punjab Governments have given pecuniary and substantial help to the Ahmednagar hand-loom industry, and to the Madras and the Ambala glass-works respectively.

emonstration factories.

Demonstrations are of the utmost importance for the match industry. Experiments have often to be made as regards wood and composition. The latter plays a very important part in the manufacture of matches and more so in the peculiarly damp climate of this country. The wood that is recommended by Mr. R. S. Troup, Imperial Forest Economist of the Government of India, as suitable and available has many defects and is, so to say, unsuitable for manufacture in its original state. It is black in colour, its fibres are not straight, it is brittle, and when placed side by side with the Austrian or other foreign matches presents a very poor appearance. And as this is the only available wood that can be had in large quantities it must undergo a series of chemical processes before it becomes suitable for matches. The bark of the wood and the inner log that remains behind after peeling are at present of no use and these are used as fuel. Experiments have to be made therefore to see whether this wastage can be utilized in some way. A manufacturer is unable to make all these experiments and so the opening of a demonstration factory is necessary.

ndustrial banks.

Business is hampered for want of sufficient funds. Little provision is made at the outset for preliminary expenses, spare parts of machinery, rolling stock and other things important and necessary for the manufacture of an article. The capital collected is almost all spent on buildings, machinery, trials and other items and at the time of the commencement of actual work very little or no margin is left. If the finished goods produced are sold readily for cash then only can the manufacturer pull on. But when he is in a hurry to have his goods sold he cannot get a remunerative price. In order to facilitate the work of the manufacturer the organisation of an industrial bank is necessary. The bank should supply floating capital for the industry. But there is another important function which the bank has to perform. Finished goods have very often to be sold on credit. The purchaser does not send money with his order but wants to pay after he gets the delivery of the goods. After he gets delivery he does not send the money immediately and in some cases the money is lost. If such a bank is opened and has branches at business centres, goods can be sent on the customer furnishing a credit on the bank. The manufacturer and the purchaser are both safe in the transaction.

If well established banks open their branches at business centres then there is no necessity of a new industrial bank. But so long as this is not done a new industrial bank seems to be an absolute necessity. People who may be unwilling to invest their money in industrial enterprises are likely to invest in such a bank and thus indirectly help the industries that are started. If the proposed bank has Government support and is partially under Government control it will easily enlist public confidence and will attract deposits.

**Transport difficulties.**

Wood is the principal Government-owned raw material required for the manufacture of matches. But there are difficulties in transporting it from the forest to the factory. Means of communication is the present difficulty. The Government forest is at places more than ten miles away from the main road and there being no way of communication except a small rough path the wood has to be drawn by bullocks or even by men in certain places. The cost of the "lead" is thus enormously increased. Another difficulty is that of felling the tree. The tree is surrounded by others not useful for matches, and when a tree has to be singled out from so many neighbouring trees persons more than those required for actually felling have to be employed simply to see that no damage is done to the other trees.

The first difficulty can be easily removed without causing any extra expenditure to Government. Government can make roads from the forest up to the main roads. The money so spent will be more than recouped inasmuch as valuable woods, like teak, which at present have to be sold at a low rate only for want of roads, will bring in a good price. Thus the making of roads is of benefit to Government and of much use to the match factory.

Now I will turn to another difficulty caused by the roads in the forest. At present wood can be felled only for six months in the year. During the whole of the rainy season and for two months after that wood cannot be felled. In these six months it is practically impossible to enter the forest and so the wood required for the manufacture of the whole year has to be cut and felled in six months only. The drier the wood the more useless it becomes for manufacture. This causes a substantial loss inasmuch as wood is wasted and the matches turned out are of inferior quality.

New plantations of wood suitable for matches will solve all the present difficulties. This being important, I shall deal at some length with the point.

Matches are required for the daily use of all, the rich and poor alike. The rapid increase in the consumption of matches proves the same thing. One match factory which produces 250 gross of boxes daily can hardly supply the wants even of one district like Satara. This means that nearly two tons of wood are required daily for the working of one factory in district. I mention this to show that wood is required in no small quantity and that Government should have the plantations as near as possible to the business centres. The quality of the wood to be planted should be carefully selected so that the bark and the inner log will be of some use. The plantation of such trees would greatly encourage the manufacture of matches.

The match industry is dependent on many other industries such as paper, chemicals, labels and other sundry articles. Encouragement to the match industry means indirect encouragement to those industries which have got a ready market for their finished goods.

**Railway freight.**

The high freight charged on matches is another obstacle in the way of this industry. The railway charges are prohibitive. Moreover some railways have made rules that freight shall be charged on twenty maunds even though the goods booked are 1 or two 2 maunds in weight. Such hard and stringent rules must be abolished. The railway companies should be asked to charge only the minimum freight that has been sanctioned by the Government of India. The freight now charged is very near the maximum.

**Training of labour.**

Lack of primary education does hinder industrial development. It has been found that persons who have got primary education often grasp things more easily than their illiterate co-workers. The former work with confidence and ease while the latter appear to be always diffident and clumsy. Months pass before an illiterate worker can be entrusted with the responsibility of a piece of work while he takes many more months to require anything like efficiency. During all this time the manufacturer is a loser, because no workman can remain an apprentice. He is to be paid, from the beginning, a full wage owing to the increased demand for labour, while the work that he does is unsatisfactory. Even with this many of them after the expiry of some months leave the factory thinking themselves incompetent for the work. Some have to be told to leave for the same reason. The effect of all this is that the factory suffers. Technical education is equally important and early steps should be taken to impart it at least in the Municipal towns.

Training of supervising staff.

The supervising staff and the manager should also pass through a course of instruction. Such instruction they can get at a demonstration factory. Skilled labour and expert managers and supervising staff are essential for the prosperity of an industry and the sooner steps are taken in this direction the better.

The Municipalities and the Local Boards can help the industry by exempting goods from octroi duties and other taxes on the concern. The loss to an individual Municipality will be very small but such exemption will also prove useful in its way to the industry.

Government aid required for the match industry.

I will now summarize and state briefly the Government aid which is necessary and urgent for the match factory that I represent, that is, the Deccan Match Manufacturing Company, Limited, Karad.

(*a*) A grant-in-aid of five thousand rupees annually for at least five years, as in the case of the Ahmednagar loom industry.

(*b*) Forest roads.

(*c*) Reduction of railway freight to the minimum scale sanctioned by the Government of India.

(*d*) Plantations of wood.

(*e*) Opening of a demonstration factory.

(*f*) Organisation of an industrial bank.

(*g*) Advice to Municipalities and Local Boards to exempt from taxes the locally produced matches, the raw material, etc.

### ORAL EVIDENCE, 21ST NOVEMBER 1917.

*President*.—*Q*. You are the chairman of the board of directors of the Deccan Match Manufacturing Company: are you at liberty to tell us the capital of the Company?—*A*. Yes, Rs. 1 lakh.

*Q*. All paid up?—*A*. Rs. 70,000 has been called up.

*Q*. And the Rs. 70,000 called up is all solid cash?—*A*. Yes.

*Q*. No nominal capital?—*A*. No.

*Q*. How many directors have you got?—*A*. Seven directors.

*Q*. The company is well managed?—*A*. It is not working now.

*Q*. So the directors do not draw any director's fees?—*A*. They never drew fees even when the factory was working.

*Q*. They worked out of patriotism?—*A*. No; the factory didn't pay and so the directors didn't receive fees.

*Q*. When did the factory commence operations?—*A*. In 1909.

*Q*. And when did it cease?—*A*. In 1915.

*Q*. During that time they didn't pay any dividend at all?—*A*. Not at all.

*Q*. Made no profits?—*A*. No. Only in one year we could make both ends meet.

*Q*. You turned out large quantities of matches?—*A*. Not large, but we did make some quantities.

*Q*. What is the name of the brand that you sold?—*A*. We had many brands: Antelope, Prince of Wales and Maruthi.

*Q*. Who was managing your factory?—*A*. At the beginning one Mr. Karmarkar was manager, and then the secretary was the manager.

*Q*. Was your manager an expert trained in match manufacture?—*A*. It was supposed at that time that Mr. Karmarkar had some experience.

*Q*. Where was his training obtained?—*A*. He was in some other match factory, and then he came to Karad.

*Q*. So you had no expert manager?—*A*. No.

*Q*. And none of the directors were experts in match manufacture?—*A*. None.

*Q*. Can you remember the relative cost of the splint and the match head—the chemicals and the wood?—*A*. I can tell the different prices at that period when the factory was working; now of course I do not remember; I cannot tell as the factory is not working.

*Q*. What was the relative cost of the chemicals that you used and the wood that you used? You used a certain amount of timber for the splint and for the boxes, and you used a certain amount of chemicals for the head of the match and also for the manufacture of the boxes: can you remember what these two groups of raw materials cost you relatively?—*A*. You want the proportion?

*Q*. Yes, the proportion: what was it, half and half, or one-quarter and three-quarters?—*A*. It will be in the proportion of two to one.

*Q*. Which is two?—*A*. Wood two, chemicals one.

*Q*. So that a larger proportion of the cost was due to the expense of the raw material in the country?—*A*. Wood is not the only raw material.

*Q*. We had evidence of quite a different kind in another place indicating that the chemicals used cost more than the wood that was employed: do you think that was wrong?—*A*. I can give you the actual figure: for the manufacture of one case = 50 gross, Rs. 6 or 7 worth of chemicals are required, maximum Rs. 7 per case; and Rs. 11 worth of wood. There is another thing—all the wood is not used actually for match making; the whole amount of wood is not required for actual match making, though that amount has to be spent.

*Q*. Where did you get your machinery from?—*A*. I do not remember the name of the firm; it came from Germany.

*Q*. Had you machinery for making these sheaves of wood for the boxes as well as for the match?—*A*. Yes.

*Q*. And then your labels were printed in Europe?—*A*. Some were printed here at Karla: some were printed in Europe.

*Q*. Do you remember the relative cost of printing labels in India and printing them in Europe?—*A*. I think it was nearly the same. There was not much difference.

*Q*. And the quality, you remember, of the labels printed out here?—*A*. The quality of course was not to be complained of.

*Q*. I mean whether they were attractive or not?—*A*. There is some difficulty.

*Hon'ble Sir R. N. Mookerjee.*—*Q*. You say that "the high freight charged on matches is another obstacle in the way of this industry. The railway charges are prohibitive. Moreover, some railways have made rules that freight shall be charged on twenty maunds even though the goods booked are one or two maunds in weight": which railway is that?—*A*. The Great Indian Peninsula Railway.

*Q*. Is it in the tariff table?—*A*. The minimum charge is for 20 maunds for matches, though the weight of the case is one maund or two maunds.

*Q*. If imported matches from Japan or Sweden are sent from Bombay to some other station, would the freight be charged on 20 maunds also?—*A*. I do not know what they charge from Bombay. What they have charged for our matches is this. We have actually paid like this. If it is 20 cases or 30 cases, of course the charge is not much, but for one or two cases the minimum has to be paid.

*Q*. Is there any reduction of fare for large quantities?—*A*. Our cases are sold singly, one to one station and another to another station; of course we cannot send any large quantities to every station.

*Q*. Did you represent the case to the Railway Board?—*A*. It was represented.

*Q*. Have they made any concessions?—*A*. They were going to make some concessions when the factory stopped.

*Mr. A. Chatterton.*—*Q*. In your factory at Satara have you experimented with different kinds of wood?—*A*. Yes.

*Q*. Have you arrived at any results as to what sort of wood you want?—*A*. There are some four or five different qualities in the forest at present, and all of them have been used, but only two sorts of wood are suitable for this match factory. One is found in abundance, and there is another wood, I do not know its name, but it is not found in large quantities.

*Q*. These two woods you mention, are they good enough to compete against imported matches from Sweden?—*A*. They will be good enough if they undergo certain processes, not in their crude form.

*Q*. What do you call certain processes?—*A*. I do not know the processes, but the experts say that if this wood is to be used, and if no other wood is available, it must undergo some processes by which the defects could be removed.

*Q.* Are you in a position to recommend to the Forest Department any particular kind of wood which you would like them to make plantations of?—*A.* I cannot say.

*Q.* Supposing the Forest Department took up the question of making plantations, how many years would it be before that wood becomes available?—*A.* Say, 15 years.

*Q.* It would not be of much assistance to your factory?—*A.* Till that time the present wood would serve our purpose. There is wood in the forest now.

*Q.* You worked from 1909 to 1915 and you worked at a loss: what do you attribute your losses to?—*A.* The loss should be attributed to all these causes: inexpert management, very little provision for floating capital, cheap prices of Japanese matches which is one of the chief causes because though we could compete with other matches we could not compete at all with Japanese matches as their rates are very low.

*Q.* Did you find any difficulty in selling your matches?—*A.* Yes, much difficulty.

*Q.* Why was it difficult to compete with these Japanese matches? Was that due to the inferior quality of the wood used?—*A.* Of course the quality did tell on the market, but the chief difficulty was that the Japanese goods were sold very cheap. Our quality of course was not so good as the imported matches, but of course we could not sell at a loss.

*Q.* Did you find the match making machinery used satisfactory?—*A.* I am not an expert of machinery, but it appears that the machinery we had did work well.

*Sir F. H. Stewart.*—*Q.* Has your company been wound up?— *A.* It is not wound up.

*Q.* It is in a state of suspended animation?—*A.* Yes.

*Q.* That is why you would like a grant-in-aid of Rs. 5,000 annually for five years?—*A.* Yes.

*Q.* You say that the business is quite new to investors as well as to those who work the factory, that is to say, that the business is only young?—*A.* The directors, secretary and manager are all new to the business.

*Q.* Are there any experts to your knowledge in this Presidency in match making?—*A.* None to my knowledge.

*Q.* Do you know of any match manufacturing factory in this Presidency which is working at a profit?—*A.* There is one which I think is working at a profit.

*Q.* What is the name of your manager?—*A.* I do not know the name of the manager.

*Q.* You do not know the name of your own manager?—*A.* The secretary is the manager. Mr. Karmarkar was the original manager.

*Q.* Had he been trained as an expert?—*A.* He worked at the Kotah factory and had some experience, and he came here as manager.

*Q.* Did you use the wood that was recommended in the pamphlet of Mr. Troup's?—*A.* Yes.

*Q.* Did you make experiments with it before using it?—*A.* No experiments were made.

*Q.* What is the name of the wood?—*A.* *Bombax malabaricum.*

*President.*—*Q.* Do you know that the wood grows locally? Do you find much of it here in Bombay? *A.* Yes, near the Konkan forest it is grown.

*Q.* Is there much available?—*A.* It is available there.

*Q.* Had you to bring it from very far?—*A.* Yes.

*Q.* It costs you a good deal?—*A.* Yes, a good deal.

*Q.* What is the cost per cubit foot when delivered at the factory, or per ton or whatever the measure?—*A.* One cart load Rs. 11 or 12 at the factory premises.

*Q.* How much is there in a cart load?—*A.* I think 15 Bengal maunds.

*Q.* Small carts?—*A.* Bullock carts.

*Q.* Fifteen Bengal maunds cost Rs. 11 or 12, that is Rs. 20 a ton?—*A.* Yes, Rs. 20 to 22 a ton.

*Mr. G. A. Thomas.*—*Q.* I suppose you will agree that the most essential thing in a match industry is a continuous supply of suitable wood. Now Sir Thomas Holland was asking you about the price; is it not a fact that a few years ago you were given a monopoly of cutting all match wood trees within a five mile radius in the Satara forests at the rate of two annas per cart-load subject to taking a thousand loads a year?—*A.* Yes.

*Q.* You paid about two annas a cart and yet the cost per cart-load after delivery at your door was Rs. 11?—*A.* There is the cost of felling the wood and the lead.

*Q*. Did you use up all the wood within the five mile radius?—*A*. We used it only for a short time.

*Q*. Why did you cease to use that wood?—*A*. The factory stopped working.

*Q*. Is it not a fact that you imported splints from abroad?—*A*. At one time some splints were imported.

*Q*. Some time after you received this concession?—*A*. Yes.

*Q*. You got this concession in 1909?—*A*. In 1909 or 1910.

*Q*. Subsequently you substituted these splints from abroad for the local wood?—*A*. We wanted to substitute them, but the prices of these splints have become prohibitive.

*Q*. As a matter of fact you did import splints for a time and you manufactured with profit—*A*. At that time the market was very high, and we could make both ends meet.

*Q*. If you had a sufficient supply of wood within five miles, why did you import splints as well?—*A*. The splints of this wood are not good—not suitable for match making.

*Q*. Then this wood that you used, namely, *bombax malabaricum*, was not found suitable?—*A*. When compared with other matches it is unsuitable.

*Q*. Therefore you found it more advantageous and more economical to import aspin splints than to make use of the wood that is growing near your factory?—*A*. Yes.

*Q*. You say this wood *bombax malabaricum* is not really suitable for match making: is there any other kind of wood you know of in the Bombay Presidency that is suitable?—*A*. I do not know of any.

*Q*. You know of none. In that case is there any hope of a match industry flourishing in this Presidency?—*A*. Some chemists say that if this is the only wood available and if no other wood will be available in India, then it will have to go through some chemical process, and then it will be useful.

*Q*. Is there any suitable wood in any other part of India, in the Himalayas for instance?—*A*. I have heard of that.

*Q*. Don't you think it advisable to concentrate match manufacture on the Himalayas?—*A*. Yes, it might be.

*Q*. You have not studied that question at all? Suppose you had then a homogeneous forest of wood, wood suitable for match making, would it not be more profitable to start a factory there than here?—*A*. Surely.

*Q*. Or could not the splints and veneers be made there and distributed thence to different places for making matches?—*A*. The lead would be very great.

*Q*. Would the lead not be the same for matches as for splints?—*A*. By lead I mean freight. The freight rate for matches is higher than for splints. If manufacture is at different centres, then alone the people will get matches at lower rates.

*Q*. Have you had any experience of plantations?—*A*. No, I have not.

*Q*. Do you propose that Government should grow these plantations near the factory?—*A*. Yes, Government should take this up.

*Q*. And then Government should presumably sell the trees and charge royalty?—*A*. Yes.

*Q*. You would have the plantation grown by the Forest Department and the produce sold at so much a foot?—*A*. They should be sold at a reasonable price.

*Q*. At what price should wood be delivered per cubic foot to enable you to manufacture at a profit?—*A*. That will vary according to the rates at which the matches are sold.

*Q*. Taking the pre-war rates, at what price could you afford to pay per cubic foot if delivered at your factory?—*A*. I cannot say.

*Q*. How much of a cart-load would you use for match making?—*A*. Only one-fourth of a cart-load; the bark is useless, and the inner log that remains after being peeled is also useless.

*Sir D. J. Tata*.—*Q*. When did you start this company—*A*. In 1909.

*Q*. It was actually working in 1909?—*A*. Yes.

*Q*. Did you issue a prospectus of any kind when you started this company?—*A*. Yes.

*Q*. Who were the shareholders—your personal friends or the general public?—*A*. Many of them were personal friends.

*Q*. And in your prospectus, what prospects did you hold out to them?—*A*. I do not exactly remember, I think we guaranteed more than six per cent. interest.

Q. In guaranteeing this six per cent. interest you must have gone into figures, and made enquiries as to the possible success. Why did not these expectations of yours come to pass? Why did you fail if your prospectus made out that you were going to make a profit? What were the reasons that led to failure?—*A*. The first thing was that we could not realise the price we hoped to get for the matches. We thought that the matches would be sold at some Rs. 45 to 50 a case, but we had to sell between 35 and 40.

*Q*. What I mean to say is that you issued a prospectus telling your friends that your profits would be so much. Did you work out the probable cost?—*A*. Yes.

*Q*. You did. Well then, what basis had you for arriving at this probable cost? You say here that you found that the wood you worked with was not suitable. Before issuing your prospectus, and before ordering the machinery, did you find out whether the wood was suitable? Did you ask the forest officer whether this wood was suitable for match manufacture before you started your factory?—*A*. The secretaries visited some two or three factories and they saw that this wood was used there, but the match turned out was inferior.

*Q*. Then they knew that the match at your factory would also be inferior?—*A*. Still it was selling at a little less price than the foreign match, but then this rush of the Japanese matches came in and prices were abnormally increased.

*Q*. You say that the market was quite different when you started, then the Japanese matches came in, and you did not provide for that beforehand. But you say in the first sentence of your note that capital is unwilling to come forward in industrial enterprises. Well, do you think that capital would come forward if you put forward propositions which were not carefully considered? You did not make sure whether the wood that you required would be suitable or not; you did not have a manager who had any special knowledge of the industry, because you say that the manager you had was not an expert himself; then you said in answer to one question that you attribute your failure to want of capital; yet you did not make proper enquiries to find out that you would get the necessary capital for working your factory. Was it the fault of capital that you should put forward a proposition of this kind without having very carefully examined the thing, and ask your friends to subscribe? That sort of thing leads to want of confidence in starting new industries. Your object in promoting industries is the good of the country. But if schemes are put forward that are not very carefully considered, and moreover if for the sake of floating a company you started a factory without making the necessary enquiry and the necessary experiments, is it fair that you should blame capital? You ought to have had some idea as to whether when you floated the company you would make it possible to work it for the benefit of the country. By floating factories that were bound to fail do you not think that you did a great deal of harm to the industries of the country? For instance, why did you choose Satara for starting your factory? Was it in any way suitable?—*A*. The wood was there and the railway station was near.

*Q*. That is all the enquiry you made as to the possible success of your factory? As a matter of fact you found after a five years' concession that the wood there was not suitable. So you did not make enquiries; and without having made enquiries you invited your friends to subscribe capital, and they did. Unfortunately for themselves now they have lost all their money.—*A*. The wood that we used was recommended by the Imperial Forest Economist and it was also tried in another factory; so it was hoped that it would be suitable.

*Q*. So you started practically without experience. You had no experts to advise you about match production: you said the man whom you had was working first in another factory. In what capacity did he work there?—*A*. He was there as manager.

*Q*. What experience had he before he went there as manager? Was he a man of your district?—*A*. I do not know.

*Q*. You found a man who said that he had been in a factory for a year, and you started your factory without any investigation and led the public into putting their money into a thing which was not well thought out?—*A*. Enquiries were made, but we could not get all the information. We were supplied with information, but that information was afterwards found to be insufficient.

*Q*. You did not make careful enquiries. Somewhere in your note you speak of railway charges being prohibitive; have you tried to approach the Railway Board on the subject?—*A*. Applications were made, but——

*Q*. You did not get satisfactory results?—*A*. In some cases we got, in some cases we did not.

Q. Perhaps the volume of your trade was not large enough to justify the Railway Board interfering in the matter?—*A*. It could be said the other way: because it was not large the Railway Board did not think it worth while.

*Q.* You say that municipalities and local boards can help the industry by exempting goods from octroi duties and other taxes on the concern. You could not save very much from exemption from octroi duties?—*A*. It is only an allurement.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q*. I suppose from the answers you gave to Sir Dorab Tata that you only started your concern through patriotism as a *swadeshi* enterprise?—*A*. Not through patriotism or as a *swadeshi* enterprise.

*Q*. But you did not calculate everything before starting it, and in explanation to Sir Dorab Tata you have said nothing as to whether you made proper enquiries or not?—*A*. We made enquiries but afterwards we found that the information was incorrect.

*Q*. You did not make enquiries from the proper channel? You entirely relied on one man? I suppose this very man must have induced your directors to start the industry?—*A*. He of his own accord has not done anything.

*Q*. When you thought of starting a match factory in Satara, what tempted you to start that factory?—*A*. It cannot be said what tempted.

*Q*. If I want to do something, there must be something to induce me to do that?—*A*. Of course the wood was available near Satara.

*Q*. But you did not ascertain whether that wood is suitable or not?—*A*. It was said to be suitable by a responsible official.

*Q*. If you had made enquiries from the Imperial Forest Department, they would have told you. Now you have already spent Rs. 70,000 on the factory?—*A*. Rs. 1 lakh have been spent on the factory : 70,000 capital and 80,000 debt.

*Q*. But in these times when everything is selling at top price, you can make profit on your matches, you can sell your matches at a higher price?—*A*. We can sell if we can start again.

*Q*. If you can start; you can make a profit now, can't you?—*A*. We can make both ends meet.

*Q*. At this top rate, cannot you make a profit?—*A*. But in normal times impossible. This unexpected rush of Japanese matches has made it impossible to pull on with the factory, otherwise there was every chance of success.

*Q*. Do you think it is foreign competition alone which stopped your factory?—*A*. We were able to sell at Rs. 10 less per case than the price of Swedish matches, but it is impossible to compete with Japan. They sell here at a price less than our cost price.

*Q*. As the President told you, we heard that more than two-thirds of the raw materials used is foreign material. In India you have not got any sulphur. Again Japan makes its own paper which you don't make. There are other chemicals which Japan makes, especially sulphur which is their own industry. Thus they make almost every raw material that is required. Here in India before a match factory is started one has got to make sure whether sulphur is available : do you know whether any sulphur can be had in India now?—*A*. No.

*Q*. So really speaking it is very difficult to compete unless there is some protection?—*A*. Yes.

*Q*. Do you think if you get all that you want here, namely, a grant-in-aid of Rs. 5,000 for five years, forest roads, reduction of railway freight, plantations of wood, opening of a demonstration factory, an industrial bank and so on, your factory will work at a profit?—*A*. Plantation of wood depends upon climate.

*Q*. Suppose they find out that a certain class of wood can be grown not at Satara, but say at Poona or some other place, then this factory cannot work?—*A*. The factory will be shifted there, what is there?

*Q*. But what are you going to do with your factory unless you get wood?—*A*. It has not yet been settled what is to be done.

*Q*. What would be the organisation of an industrial bank that you suggest? Can you give us any idea?—*A*. I have no idea.

## SUPPLEMENTARY EVIDENCE.

Letter No.——, dated 15th January 1918.

From—L. M. DESHPANDE, Esq., *Chairman, Deccan Match Manufacturing Company, Limited, Karad;*

To—The Secretary, Indian Industrial Commission.

With reference to your No. 4489—2,* dated 6th January 1918, I have the honour to inform you that it is not possible for me to remember exactly what the questions and answers were. I can only say that in some cases I have been misunderstood. The tone of the question put to me by Sir Dorab Tata is that our concern failed for want of experiments and previous inquiries. I have therefore to say that we had made experiments and that we did make previous inquiry. We selected the wood recommended by the forest officer of India Government and this sort of wood too was tried before the working of the factory. The cost price of our matches came very near to those estimated by that very Government officer. But what came in our way was the competition with Japanese matches. We knew that the quality of our wood and matches was inferior to that of the Swedish and other matches, but to compete with them we could reduce our rates by 20 per cent. But the Japanese rush of matches which came in after the commencement of our factory quite vanquished us and it is therefore that we want protection.

---

*Not printed.

I may add that the factory is at Karad and not at Satara. The wood regarding which concessions were given is not within the radius of five miles from the factory, but is at a distance of twenty miles and even more in many cases. I have made no corrections in the manuscript because, as stated above, I do not exactly remember the wording of both.

* * * * * * * *

### WITNESS No. 319.

Mr. H. N. Morris.

MR. H. N. MORRIS, *Chairman of the Eastern Chemical Company, Limited.*

(*Note.—The written evidence of this witness was confidential. He did not give oral evidence.*)

### WITNESS No. 320.

Ir. D. S. Shaligram.

MR. D. S. SHALIGRAM, *Industrial Inspector, Kolhapur State.*

### WRITTEN EVIDENCE.

#### *Financial Aid to Industrial Enterprises.*

lovernment ssistance.

On point of capital I would like to submit that unless the people at large get to know the usefulness and importance of an industry, they cannot be expected to contribute. Even the so-called educated people in India do not know to what extent industry can be successfully developed. In spite of the impoverished condition everywhere, I believe, capital will come in, provided those who would subscribe are made to know the usefulness and profitableness of a concern. The collapses of financial concerns would no doubt interfere with a free flow of capital. Yet I believe once the people are assured of the soundness of the concern, money would come in. The particular industry which I have been at (*i.e.*, wood-distillation) ought to be financed either by the State or by the people privately. Money cannot be taken from the co-operative societies. They are yet in an incipient stage of evolution and are not in a position to finance the agricultural industry, in which direction so much yet remains to be done. At any rate during the experimental stage the State ought to finance the industry. It is, therefore, absolutely necessary that Government should start some pioneer factories and work them until a stage arrives when people may take most willingly to invest their money and start similar concerns or take up the already established ones on their own responsibility. To induce people to take up and run concerns started on pioneering lines by Government, Government had better guarantee dividends for some limited time and also give plants on hire and purchase systems. Thereby the locked up capital of Government would be reimbursed gradually. To accentuate matters, Government again should guarantee purchase of products and allow immunity from taxation for some fixed period. If the industry assume widest proportions, Government can also advance loans on securities, and if necessity arises they can also bountify or subsidize any special output. All this depends upon future developments. If Government assistance is once given to such industrial concerns, some sort of control will have to be exercised simply to see that the concerns aided are running in smooth course and that fraud and other causes which undermine them are kept out. The best way of doing so is (1) by auditing accounts, (2) by appointing some local persons of integrity and education on behalf of Government to ensure the honest working of such a concern. Such a nominee should be invested with some powers and his labours also should be remunerated in ways, the circumstances under which the appointment to be made would suggest. Besides there should be a Director of Industries for every province whose work should be both of supervision and expert advice whenever the latter is needed. Once the pioneer industries started by Government stand on their legs, Government should see that they are taken up by people. They should not be permanent appendages of Government. The different jurisdictions and the different laws that prevail in India no doubt go to hamper the smooth working of going concerns. There ought to be uniformity of law and procedure all over India, so that all risks in freely dealing with customers would be minimized. Changes in the present laws (both statute and otherwise) will be necessary to prevent people from avoiding payments which they are bound to make.

Financing agencies

There ought to be a liberal change in the banking arrangements as they at present exist. There ought to be a Central State Bank for each province and its branches should be so multiplied that the actual workers should get the capital they require and the capitalist the interest for the use of the money he lends without intervention of the middlemen. The brokers or middlemen are a sort of a double-edged instrument and they cut both ways. The co-operative credit societies and the Central Bank and its branches should work either as one or on concurrent lines, so that both small and big or household industries would thrive well. Within my own experience, I have seen that these co-operative societies have helped to relieve both the agriculturist (by which I mean the actual tiller) and the weaver. The Government should go on helping the industries until it is found that they can keep down the foreign imported articles. As soon as the current of imports of ready-made articles is stopped, Government aid to internal industrial concerns should cease.

Competition with foreign industries.

*Technical Aid to Industries.*

Technological and scientific aid provided for by Government would be of immense use to all industrial enterprises, in addition to the pioneering work. Owing to changes of policy recently introduced, some successful experimenting has been made departmentally with the result that the industries in respect of which such work has been undertaken have profited materially. The technical and scientific experts retained by Government should carry on the work of analysis and other work that will be referred to them, and further their services should be lent whenever requisitioned on terms suitable in the circumstances. The results of their specialized work should not be published in all its technical details. The publication should be made so as to furnish interested people with materials for acquiring full knowledge. This information again should be allowed to be taken advantage of only by Indians. The information should not be allowed to fall into the hands of foreigners. In foreign countries we find that all trade secrets are most scrupulously guarded, and there is every reason for the same safeguards being also adopted in India.

Work of Government experts.

Demonstration factories.

The Government demonstration factories will be very useful as object lessons and will also serve the beneficial purpose of giving an incentive to private enterprise. Such demonstrative and pioneer factories are necessary in order to bring about a successful exploitation of the various raw materials abundantly available all over India. In addition to the arrangements made for research work in India, it will be advantageous to have provisions for research in special subjects in the United Kingdom; but arrangements should be made with the object of securing eventually that all Indian research institutions are manned by Indians. Foreign aid may only be taken for the purpose of initiating Indians into the various branches of sciences; and once the research work is fairly launched it should be left to the Indians to pursue the further work. The research institutes in India should be kept in touch with those in England, and the laboratories and post graduate course institutions attached to the various Indian Universities should be called upon to co-operate whenever the necessity arises.

Research work.

Industrial surveys.

The existing knowledge of the available resources of the country will have to be supplemented considerably. Experts in various departments of knowledge will have to be engaged to carry on surveying and prospecting work and the reports will have to be published for the use of the people in the country.

Government Consulting Engineers.

Though the firms abroad who deal in machinery supply plans and estimates, still I believe if the Government appoints some consulting engineers of sufficient experience and make them amenable for consultation to all, that will be a step which will prove of great use. Many flaws and mistakes which are incurred in erecting plants would be obviated and a good deal of economy ensured. It is not desirable to allow these engineers to undertake to purchase machinery for private firms and individuals. Theirs should be a function of offering advice when sought.

*Assistance in Marketing Products.*

Museums and exhibitions.

Commercial museums in a country like India where generally ignorance of industrial knowledge prevails are a matter of prime importance. There should be a commercial museum for each province specializing information on industries peculiar to each province. For example, the cotton growing district may have special methods of manufacturing various articles and utilizing to the best advantage the substances otherwise considered waste. Exhibitions often serve to impart and diffuse knowledge of different subjects of which a common man is generally ignorant. The manufacturer is greatly benefited since the sellers and buyers are brought in contact with each other. The Government should exhibit articles used by Government departments and which are generally imported from foreign countries, to induce local manufacturers to take up and improve local industry. The Government should enforce purchasing local manufacture instead of imported ones for its use.

*Other forms of Government Aid.*

As regards the raw material required for the purpose of wood-distillation, I beg to say that Government should give facilities for allowing the use of the trees to be used for distillation.

Other concessions.

Also space should be given for drying the trees after cutting down, as also for erecting suitable structures to put up distillation plants. Also facilities should be given for making experiments in connection with various species of trees growing in the forest. Arrangements for facilitating transport of the output should be made. Arrangements for providing water should be made or concessions for the same should be given.

If such concerns are run by private agencies, land required should be given away to them and there should be some concessions for certain period in respect of the assessment fixed. Again, either wells should be sunk or aqueducts prepared and an instalment system should be formulated with a view to get the amount reimbursed in course of time.

### *Training of Labour and Supervision.*

General.

Want of even primary education to a certain extent goes to hinder industrial development. Education, even primary, would go to improve the efficacy of labour. In order to improve the labourer's skill and efficiency small buildings should be erected near the factory and they should be given a housing accommodation there. By initiating co-operative system, provision shops should be opened on the premises of the factory. That would ensure the supply of healthy and unadulterated food at market prices. If a factory be thus made self-contained, so far as the reasonable requirements of the labourers go, many a temptation that affects the health of the labourer would be kept out. Also medical help should be kept near. If in addition to all this a school be maintained to impart primary education, the condition of the labourer would be quite above ordinary wants. Many devices again can be adopted to promote emulation amongst the workmen, and thus their efficiency also would be improved beyond imagination. Attention should also be paid to their morals and devices should be taken to ensure their morals. As the industry develops, steps should be taken to ensure the labourers against risks of premature death, and funds also should be started to arrange for old age pensions to labourers when they get disabled for work owing to old age. Industrial schools should be established. After the general course in an industrial school is gone through, a student should be allowed to be apprenticed in factories and workshops on the production of a certificate of his having completed that preliminary course. The admission for the apprenticeship should be according to qualifications. No question of caste should be allowed to come in.

Night schools.

The best way to impart primary education to labourers themselves is by means of night schools. Unless a school be made an appendage of a concern, education during daytime to the labourers would be out of the question and to afford such an appendage the concern ought to be sufficiently large. Arrangements would have to be made to allow some interval in the course of the day for such a purpose. A night school on the other hand keeps out all such difficulties.

Supervisors.

Opportunities for such apprenticeship should be given to Indians in training for supervisorship and managership in factories in the United Kingdom. Concerns from which purchases are made by the India Office will have to be made amenable for such purposes. And as regards the technical institutes in India there should be uniformity in instruction, especially in the case of mechanical engineers. There should also be a similar uniformity in the tests prescribed for them.

### *General Official Administration and Organization.*

Director of Industries.

Instead of a board at the beginning there should be a Director of Industries for each province. On the executive side he should be a registrar of joint stock companies and all partnerships should be registered with him. The object of the registration of partnerships is not to limit their liabilities, but this suggestion is intended to enable the creditors of partnership firms to get at the members of the partnership whenever recovery is rendered difficult. The regulations about submitting balance sheets, etc., as they obtain in case of companies with limited liability should also be made applicable to partnerships.

The function of the director should also be advisory. In addition to advising people who are engaged in industries in respect of any difficulties experienced by them, he should also put them in touch with wholesale buyers and do all such things as may tend to make the various concerns under his parochial jurisdiction a success. He should be an "every-concern-man," that is, every concern in his jurisdiction must look up to him as one of themselves. His office should also discharge the function of an information bureau. If the number of industries become numerous and if it becomes difficult for one director to attend to all of them, a number of deputy or co-directors should be engaged. In short, these directors must evoke the sympathies of the people. He should not be one of the stiff officials answering only references made to him with official curtness.

### *Technical and Scientific Departments.*

Technological institutes.

For each province there should be a technological institution, which should include chemical and mechanical and electrical sides. The chemical-technological work should be done independently of the mechanical work. The mechanical-technological institutes can be run by municipalities in the form of municipal workshops where all the details of mechanical technology can be successfully worked out. As regards the chemical-technological institutions, they should be run by Government. Each province should have one of such institutions and their work should be confined to the raw products and the industries peculiar to that province. They should thus develop as individual units so far as specialization goes. These chemical-technological institutes should be under the control of the Director of Industries whose function should be to see that regular work is done there and that all references are promptly attended to. He should also look to the finances of those institutes from an administrative point of view. There should also be a central research institute where highly specialized work should be carried on. The parochial technological institutes should make references to the central institute whenever the necessity should arise. The Director of Industries should be the medium through which the Government control should be exercised on all these institutions.

**Control of Director of Industries.**

Graduates who show special aptitude in the technological work should be sent out to foreign countries to study up-to-date methods in their own life and after having picked up the necessary knowledge, on their return they should be given an opportunity to develop their own research work under local conditions. They should be given tutorial work and the rest of the time they should devote to specialization. Every technological institute ought to have an up-to-date library and students should be encouraged to use it. These libraries again should be kept open for reference by interested people outside. The mechanical-technological institute should be run by local boards whenever and wherever any locality demands it. Outside the province of municipalities the local board should do it.

**Study of foreign methods.**

*Collection and Distribution of Commercial Intelligence.*

Government should assist publication of trade journal and should also periodically issue monographs on different industrial subjects. The brochures already published are not useful in the way they ought to be. The information to be given in the monographs should be more sound and useful and instructive from a practical point of view. In order to increase the usefulness of these publications translations in different vernaculars should be published and they should be freely circulated so that persons interested will be automatically induced to study them.

**Trade journals, etc**

*Other forms of Government Action.*

The Forest Department as at present constituted works on the line of preservation only. There should be a separate branch of the same department whose function should be to collect various products that grow in forests and ascertain the economic value. Roads should be opened out and where necessity arises light railways should be put down to facilitate transport of raw products.

**Work of Forest Department.**

*General.*

The possibilities of the wood-distillation industry are very great, so much so that unless the industry is taken up seriously in various parts of India and all the possibilities developed, people at large would not have any real idea as to its importance. To come to particulars, I have been making experiments for the last ten years, during which time I have tested a number of varieties of wood growing on this part of the Sanhyadri Range. I have got a small experiment plant consisting of 5 C.I. retorts holding about 150 lbs. of wood each. The above plant is situated at Dajipur, a place rather remote from railway communication. But I had to choose the place because of its vicinity to the Sanhyadri forests and easy communication by sea. The result of my experiments is that the charcoal produced goes to meet the factory expenses. And the tar and wood-vinegar are made practically without any cost. Commercially they represent the profit. The greater the scale on which the concern is worked the greater and surer is the margin of profits. The p.p.t. tar is readily marketable and the wood-vinegar is susceptible of chemical exploitation. Separation of acetic acid and methyl alcohol can be done here without much difficulty. But taking into consideration the present state of India the services of chemical experts would be necessary for the further exploitation of tar. If it comes to the exploitation of liquid distillate, I would suggest that it may be converted in the form of lime acetate so that all difficulties of transport would be obviated. Acetic acid and its different salts are imported everywhere in immense quantities, but if this branch of industry is taken up locally, there is every probability of meeting not only the local demand but supplying even the foreign markets. Speaking in a general way, I may say that the natural resources of India are inexhaustible. The soil in India is extensive and fertile though the soil conditions vary with every province. It would, however, be desirable that wood-distillation plants should be set up with due regard to the proximity of forests as well as facilities for exportation of products either by land or sea, preferably the latter. Railway freights in India are rather prejudicial to the successful marketing of exploited products. As regards labour much skilled labour is not at all required to begin with and that labour can be commanded anywhere without much difficulty. Technical knowledge comes in when it is

**Wood-distillation.**

thought to develop the complicated portion of the industry. For the initial exploitation much technical knowledge is not absolutely necessary.

## APPENDIX.

Wood-distillation.

I. Various kinds of woods in the State forests were subjected to tests and it was found that some varieties yielded satisfactory results. The work of testing was done with one retort only in the year 1905. To ascertain the economic value of the products and to find whether the industry would be successful from a financial point of view, the work was taken up in 1915 with a set of five retorts. The percentage of products was satisfactory, and the cost of wood and labour were recovered from the sale of charcoal alone. There is about 1,600 lbs. of wood-tar and 1,200 gallons of crude wood-spirit obtained from the experiments during the last six months, the cost of the wood required being approximately estimated at Rs. 185.

II. The chief difficulty in connection with the industry lay in the immediate disposal of crude wood-spirit, since there are no factories which would take up the work of separating methyl alcohol and acetic acid or form acetates therefrom.

III. The crude product was therefore sent to England, France and Germany in 1908 as a sample and opinions obtained. There were no definite opinions beyond inquiries from the respective Consulates as to the quantity of products turned out every day. But the German manufacturers suggested the best process of converting it into lime acetate which they said had a large demand.

IV. As the crude wood-spirit is not imported in India, no comparison in prices can be made with similar foreign article. If however acetic acid is separated, the product is likely to have a very good future, and it is believed the work can be done here with comparative economy.

V. Wood-tar has good local markets, and it is likely to be sold with equal advantage in European markets where it is quoted at Rs. 100 per ton. The foreign tar was sold here (at Kolhapur) at 2 rupees a gallon before war. At present it has gone high, and consequently the article being equally effective does not find any difficulty in securing good prices.

From my experience of about ten years' experimenting, I find that this industry is a promising one even in times of peace, and more so after the war, since there will be a large demand for the products in colour industry. Other products, such as creosote, guiacol, and especially acetone, are in great demand on account of their increased use during the time of war.

Important opinions of experts regarding the wood-spirit are attached hereto.

### WOOD DISTILLATION.

*(Opinions.)*

The Reporter on Economic Products to the Government of India says :—

The sample of wood-vinegar or crude pyroligneous acid contained 4·35 per cent. of non-volatile tar and 8·55 per cent. of acetic acid. A sample of pyroligneous acid obtained from cocoanut shells examined last year afforded 3·8 per cent. tar and 10·11 acetic acid. These products do not appear to be manufactured in India, but are obtained in large quantities in England and on the continent, where the pyroligneous acid is used for dyeing and the tar, creosote and acetone are separated on a commercial scale. For the sake of comparison it may be mentioned that hard woods are used in Britain for destructive distillation and from experiments made by Stolze with a Swedish oven the following amounts of acetic acid were separated from the pyroligneous acid obtained from the undermentioned woods :—

| Birch. | Beech. | Oak. | Juniper. | Fir. | Pine. |
|---|---|---|---|---|---|
| 9·9 | 9·7 | 9·0 | 5·1 | 5·2 | 5·0 |

" The Indian made acid is therefore of good average strength." The acid is largely used in dyeing as it forms soluble salts with copper, iron, lime and alumina, and does not affect the fibre. It also connects the alkaline and earthy liquors and is useful for forming lakes.

Pyroligneous acid is sold in France at 10*s*. for 100 lbs.

(Sd.) D. HOOPER,
Reporter.

The Chemical Analyser, Government Laboratory, says :—

That it is a sample of average crude " wood-vinegar " and contains 6·36 per cent. acid calculated as acetic acid.

(Sd.) W. H. DICKINSON,
Captain, I. M. S.

Mr. D. G. Shah-gram.

E. Hopman, Esq., Imperial German Consul, says:—

The opinion has been given by a leading chemical establishment in Germany directly interested in the Kolhapur product.

The fluid has been analysed by us. It contains pyridineous substances and about 8 per cent. acetic acid mixed with small quantities of other organic acids. The fluid is not suitable for export.

For practical purposes it would be necessary to neutralize it with lime or pulverized chalk or other such alkaline agent as may be obtainable and to dry it by steaming or evaporating. Thereby a solid residuum is obtained consisting of pyroligneous (acetic) lime (natrom soda). This would be a negotiable product. It is used in England and Germany for manufacturing acetic acid and would be saleable subject to low freights.

(Sd.) HOPMAN.

*(Mr. Shahgram did not give oral evidence.)*

## WITNESS No. 321.

MR. R. L. SUTARIA, *Partner, Messrs. Kothari, Sutaria & Co., and Director of the Indian Cotton Oil Company, Limited.*

*Mr. R. L. Sutaria.*

### WRITTEN EVIDENCE.

I have been connected with the Indian Cotton Oil Company, Limited, since its incorporation in 1909. There were about half a dozen companies promoted at that time for the purpose of crushing cotton seed. Ours is at present the only concern engaged exclusively in the business. I may note in passing, that simultaneously with ours, or perhaps a few months earlier, a cotton seed mill was started by one of India's leading firms. It is to be regretted that this mill was closed, rather prematurely, in 1913. With unlimited resources at their disposal, the firm in question was *the firm* who should have made the enterprise a great success, had they persisted in their efforts. Financially, technically, and from a business point of view, they were in a position to cope with all the difficulties which generally came in the way of pioneers. The products they turned out were good. Their sales department was efficient. They had everything in their favour that pointed to an uninterrupted working of their factory in healthy competition with ours and, under the circumstances, the closing of their mill has been a mystery to me.

2. As to the other projects, the less said the better. A majority of them never got beyond the "prospectus" stage. Two of them were able to gather together a few thousands, and to establish factories, which worked cotton seed only a few months. They died a "capital" death, though all other causes that one can enumerate for their failure, equally hastened their extinction.

Capita

3. Our first invitation to the public for application of shares in the Company fell flat. It was only through the good and cheerful encouragement of "friends and admirers" that we were able to collect even one lakh of rupees (out of two lakhs required) and with this capital we made our humble start. I ascribe the failure of our prospectus to the following reasons:—

(*i*) We (I mean my firm as Managing Agents) were entirely unknown to the investing public.

(*ii*) Absence of big names as directors on our Board.

(*iii*) The bank mania was running high in those times, and people were more eager to absorb the shares of the new *swadeshi* banks which then held out such high promises. They offered the prospects of dividends from the day of investment as against slow dividends that can be expected from an industrial enterprise.

(*iv*) The D. D. failures, which occurred in the same year, shaking public confidence in industrial concerns.

(*v*) The problematical state of the cotton seed industry itself.

After a year and a half's successful working, we published another and a more ambitious prospectus. On this occasion we took care to include on our directorate three or four gentlemen of business fame. This, coupled with the ingenious way the prospectus was advertised, contributed largely to its success. By this time also, cause (*v*) above referred to had been partially eliminated.

4. The obvious conclusion is that capital can always be raised in India itself for a new industrial enterprise if the scheme is undertaken by a firm of Managing Agents and or

directors who command the confidence of the public as regards their business ability and enterprising spirit. People naturally do not like to entrust what, in a majority of cases, may prove to be their life's savings, to the care of business novices. From the very outset I was aware of this fact and had, therefore, sought the assistance and co-operation as directors of some "big-bodies," but was not quite fortunate in my efforts. If I had been able to enlist their sympathy for my cause in the early days of my business career I should, perhaps, have obtained the necessary capital at once without difficulty.

5. There are two facts that have struck me most while raising capital for our enterprise. The one is the apathetic attitude of the local stock exchange. I found it to my great disappointment, and I still find it to be so, that the Bombay Stock Exchange mostly confines its business to speculative transactions. The brokers have a few favourite scrips and their attention is chiefly centred in the skilful manipulations of these in accordance with the bull or the bear tendency of the times. Unlike on the London Stock Exchange a new company cannot obtain a quotation for a prescribed minimum capital. Nor do the brokers help in the least a company in the way of obtaining the necessary capital, unless, as I have said before, the promoters are well-known persons. The other fact is the absence of financing houses, I mean firms, whose business it is to underwrite the share capital of a prospective company. In Europe or America, the would-be promoter can unfold his plans to one of such houses, and if the scheme has any chance of success, it is taken up by the underwriting firm, so far as its promotion is concerned, for an agreed commission. Underwriting has recently come into vogue in this country, and has been successfully done in the case of a few schemes in Bombay. However, the financier, whose sole or chief business it is to help in company promotions, is still unknown in this country.

6. There is no royal road in India for the man who aspires to start and has the ability successfully to conduct an industrial enterprise, to raise the necessary capital unless he stands in the good graces of a financier demi-god and has further the good luck of being patronised by leading businessmen as his directors. In default, if he has his own money to put into the basket, well and good. Else he must bid good-bye to his dreams!

7. Given a strong management, an ideal directorate and favourable times, there is no question of the sources from which capital can be drawn. A well-written prospectus, thoroughly advertised, is an effective bait for all classes of people, rich or poor, in the town or in the country, irrespective of caste or creed. There may be truth in the oft-repeated story of India's hoardings. But these same hoardings have often left their hiding places to seek investment in ambitious schemes. The country that has supplied money by the crores for the Tata enterprises can still supply it for lesser projects. The only class that does not contribute any capital for joint-stock enterprise is the rich Marwari, who otherwise plays a great part in the internal commerce of the country. A born speculator, he does not think joint-stock shares afford him a good opportunity to multiply his hoards as quickly as he would desire to do. Indeed, beyond owning ginning and pressing factories, the Marwari was, until quite recently, conspicuous by his absence amongst the industrialists of the country. The stoppage of the opium trade left enormous funds lying idle on his hands. A part thereof has found way into cotton mill investments, but a great deal has sought outlet into cotton, silver and linseed speculations.

8. "Why do his people not go in for the mill industry or the like?" I once asked a Marwari, who spoke to me of the millions released by the opium trade. The reply was that it was no use to lock up his silver and gold into iron (machinery). "Supposing the concern failed," he said, "what price could they realise for the machinery? It would have to be disposed of at scrap price. Tut-tut, that was not their way." Like King Midas of old, he looks for gold everywhere, but if he can once be prevailed upon to change his way of thinking, the Marwari, more than any other community, can supply enough capital for India's industrial regeneration.

Government assistance.

9. How can Government help the industries? The eight ways suggested by the Commission in question 5 are, in my opinion, only secondary. It is to the interests of the people themselves that they should be taught to stand on their own legs in matters industrial. The best that the Government can do and ought to do is that an influential officer, say a Director of Industries, or an Advisory Committee such as has been appointed by the Government of Bombay, should carefully consider and analyse an industrial scheme that may be submitted to them by would-be industrialists, and if the scheme is a practical one with an ultimate chance of success, steps should forthwith be taken to recommend both the proposer and his plans to some capable financier. The Indian investor is always shy and prefers to err on the side of over-prudence. He will not invest his money in new industries unless he is forcibly convinced of their *immediate* success. Capital will not be forthcoming for new industries if they are started by unknown persons. But there is a class of financiers, who would get capital in abundance for any industry, even for a scheme to turn the street dirt into gold dust. What is necessary is that these financiers should be convinced of the successful possibilities of the new industries. The publica-

tion of statistical monographs alone will not help much. The Directors of Industries, or the Advisory Committees, should be in constant personal touch with the leading financiers, and should develop such relations with them that, in case of necessity, they can be influenced and prevailed upon to procure the capital necessary for any desired industry. The capitalist, like every other Indian, is an orthodox being. He has still a great charm for the cotton industry. He must be informed, in an effective way, that his capital can seek a safe diversion into other channels, and who can do this so well as an influential Government officer?

10. Should the above method fail, it is time for Government to consider what steps they should take to secure capital for a new industry. The system of guaranteed dividends on a basis agreed upon has worked successfully in the case of railways and should prove equally successful in regard to industrial undertakings. As regards subscription of a part of the share capital on the same basis as public subscriptions, I know of no instance in which this method has been adopted in this country by the Government. The British Government, however, made a new departure recently in this direction in taking up a substantial portion of the share capital of an aniline dye company promoted after the outbreak of the war. The guarantee of dividends (even for a limited period) and the offer of a subscription of shares are both methods which are well calculated to inspire public confidence in a new undertaking; and in the case of a promise to subscribe the shares of a company, it may happen that this very fact may bring forth sufficient applications from the public and relieve Government of their promise.

11. I should entirely discourage the system of money grants-in-aid, if by this term is meant grants such as are given to private educational institutions. An industry which is in need of such charity had better be left alone. Government had better assume the rôle of an investor rather than that of a donor.

12. The system of bounties and subsidies has been successfully followed by some foreign Governments, particularly by Germany in the case of the beet sugar industry and by Japan in the shipping trade. They may prove useful for certain industries in this country, but so far as the oil-seeds industry is concerned, I should recommend methods other than this. I am sorry the scope of inquiry of the Commission does not permit any consideration of the fiscal policy of the Government of India. I fail to see how important industrial questions can be discussed apart from their fiscal relations.

13. Loans, with interest, will be advisable where an industry cannot be financed by the ordinary banking methods. Such loans should only be granted to those concerns which have established factories with their own capital and are in need of further money for their efficient working or extensions. In times of depression, infant factories which have not yet built up sufficient reserves, and whose sustaining power, therefore, is weak, should be given *takavi* loans on suitable terms.

14. In my opinion, Government should not themselves undertake to supply machinery on the hire purchase or other system. A free hand should be allowed to the factory management in the selection and purchase of the necessary machinery, and a loan may be granted for that purpose on suitable terms. Such a loan was granted by the United Provinces Government to the Premier Oil Mill of Cawnpore in 1915 and the Director of Industries, in his report, observes in this connection—

"It is interesting to note that the confidence evinced by Government in promising this support has led to private capitalists coming forward with additional finance, and it is expected that in the course of the current year the operations of this company will be considerably extended, as it is intended to treble the plant owned by the company" (*vide Indian Trade Journal*, No. 546, September 1915-16, page 820). To my information, the amount advanced was Rs. 40,000 (rupees forty thousand).

15. The last form of assistance suggested in question 5 is not worth consideration. The income-tax, payable on net profits, is a minor percentage, and any concern working successfully can cheerfully bear it. The concern that makes no profit worth any assessment for income-tax loses nothing and gains nothing by any exemption therefrom. I am not aware of any other taxes exemption from which might be beneficial to an industry, except the octroi duties levied by some municipalities on the imports of industrial products into their limits.

16. Government should not guarantee the purchase of the products of an industrial concern. Such a course would only have the effect of weakening the sales department of the concern itself. From the day we started our factory, the market for the cake was assured. The product was taken up entirely by England and Germany at prices considerably above what we would have realized locally. We were lulled into a state of comparative ease, and did not pay any attention to the working up of local markets. The result was that when the war closed the European markets to us, the cake could not be moved, and for two years and a half we could scarcely make two ends meet. A Government purchase

guarantee is sure to have similar effects, unless it is for a short period only so as to afford a company some relief until they are able to dispose of their products through the ordinary trade channels.

17. As regards preference this should certainly be given, when the choice lies between foreign and indigenous products, to the latter. But when there are more factories than one making articles of a similar nature Government should buy on a competitive basis only.

18. Coming now to the question of Government control, this is necessary only in the following three forms of assistance :—

(a) Guaranteed dividends.

(b) Government subscription of shares.

(c) Loans, with (or without) interest.

In the first two cases, Government should be entitled to appoint one or more directors, who should conduct the affairs of the company in conjunction with the other directors. There should be no further interference, and the management should be left to work out the details themselves. If necessary, arrangements may be made to furnish Government with periodical reports on the affairs and financial position of the company at stated intervals, say every month or quarter. Government may even appoint their auditors. In the case where Government choose to supply the share capital on a basis at par with public subscriptions, the rights of Government as to votes, etc., should be on a parity with those of the other shareholders.

19. In the case of loans, there should be no control beyond the precautions an ordinary bank would take under similar circumstances.

20. I was invited by the Director of Industries of a Provincial Government to formulate a scheme for the establishment of an oil mill in that province with my firm as the managing agents. A scheme was submitted, which met with his approval. Then arose the question of Government control. He argued that as any assistance his Government would give to the proposed company would be at his instance, he would be morally responsible for its ultimate success and should, therefore, have a complete control over the affairs of the company including the buying of raw materials, the manufacturing and selling of the products, etc. He should even have the right to veto the managing agents. No self-respecting firm would accede to such terms, and we said that if all that control was necessary, the Government in question might as well start a mill of their own under the Director of Industries as the manager. The negotiations were ultimately broken off without any result.

Pioneer Factories.

21. I do not recommend the establishment of pioneer factories by Government. They would defeat their own object. With all deference due to Government, I am constrained to say that there are factors which render the management of a factory by Government particularly ineffective, and the very fact which it is sought to prove, *viz.*, commercial success, will be disproved. I know of only one instance of such a factory and that is the Pioneer Oil Mill of Cawnpore previously referred to (paragraph 14). This was established by the Government of the United Provinces about 1909 with the object of demonstrating the commercial possibility of the cotton seed industry. It has been claimed that this experiment was a success, though I fail to see how it could be so, having regard to the fact that the mill now crushes cotton seed only occasionally and not as a speciality. Nor has the example been followed by the general public, as there have been no more cotton seed oil mills established in the United Provinces or elsewhere since the alleged success of the Premier Oil Mill. I may note in passing that our factory was projected in the same year and differed as widely in details from the Cawnpore Mill as it did from that of Messrs. Tata at Kurla.

22. There were two more pioneer factories established, not by the British Government, but by His Highness the Gaekwar in his State. One was the sugar factory at Gandevi of which I have only a hazy recollection, having seen it in my childhood. If I mistake not, it was worked by a European expert, but it could not have been financially successful, else its doors should not have been closed so long. The other was a cotton mill at Baroda, a failure under the Government régime, but now working successfully as a private concern.

23. Nor is there any need for "demonstration" factories. Factory-owners, in their own interest, generally are on the lookout for improved methods and machinery and take advantage of these if funds permit. There is, moreover, a very keen competition amongst the various firms of machinery makers, and if any of them have improved appliances, they lose no time in bringing them to the notice of prospective buyers. Apart from the question of using superior machinery, the improvement in the quality of products may also be left to competition. I shall cite our own instance. Even before the depression brought about by the war, we found that cotton seed oil, as such, had not much chances of

success in competition with other vegetable oils which could be had so cheap everywhere in the country. It was necessary that we should offer something better that should come in competition not with the oils but with ghee, and would thus make us independent of the fluctuations in the vegetable oils trade. This gradually led to the installation in our mill of a double refining plant, a deodoriser and finally the machinery to make stearine. All these were the outcome of necessity in the struggle for existence, and none were due to any demonstration. Given progressive business management, demonstrations by Government are not necessary.

24. The financing agencies existing in the country are enumerated in question 39. They are— Financing Agencies.

(*a*) The Presidency Banks,

(*b*) The Exchange Banks,

(*c*) The Joint-Stock Banks,

(*d*) The Co-operative Credit Banks,

To these I should like to add one more, *viz.*—

(*e*) The private banker, or as he is commonly called the "Shroff."

Taking the last first, the Shroff is the most easily accessible. His methods are simple, requiring fewer formalities and causing the least delay. His means, however, are limited, and he can only finance industries of a moderate size. The financing of small industries should better be left to his care, as he is often more accommodating and less exacting.

25. The co-operative credit banks have come into existence quite recently. They have confined their operations to agricultural classes only, and I have no knowledge of any financial help rendered by them to any industry at all.

26. The Exchange Banks, as their name indicates, finance the export and import trade of the country. Their capital is large, their resources are great, but none of them have shown any inclination to finance the industries of the country, although they are the happy recipients of a very large amount of the country's savings as fixed deposits. In the matter of advances, either as loans or as cash credits, their partiality for European houses is notorious.

27. There now remain the Joint Stock and the Presidency Banks. I am afraid even they have done little towards helping industries other than the cotton industry.

28. A writer in the *Beama Journal* (an organ of the British Electrical and Allied Manufacturers' Association) recently said that the English bank manager, as a class, was merely a respectable pawn-broker, differing from the ordinary pawn-broker only in the magnitude of his transactions. I am afraid I can say little better of his Indian counterpart. An application for a loan is inseparably associated with the idea of "security", and security in the parlance of bank managers means Government Paper, bullion or the scrips of a few lucky mills. Advances are also made on the security of cotton, yarn, piecegoods and a few other articles of merchandise, but the banker in such cases is usually careful to take some other forms of pledges or guarantees by way of "collateral security." Other conditions imposed are also very strict, though the observance thereof depends on the relations between the lender and the borrower. No bank ever advances any money on the security of buildings and machinery alone, nor on the debentures of an industrial concern. Such conditions make it difficult for an industrial concern to obtain loans from banks as—

(*a*) their buildings and machinery count for nothing as a security,

(*b*) their raw materials and products are not on the banker's list of favoured merchandise,

(*c*) in case a loan is possible on the security of goods, raw $\frac{\text{and}}{\text{or}}$ manufactured, the margin demanded is too big,

(*d*) an endorsement of some substantial party is often required in addition to the other securities.

29. I cannot blame the bank manager for this state of things. He is there for business and not for philanthropy or for any exhibition of patriotic sentiments. As a businessman, it is his duty to safeguard his interest as much as possible. Trading on other people's money at short calls, he cannot afford to lock it up in immoveable property or securities he cannot immediately realise in case of necessity. He cannot afford to finance industries that are in the making and his cold attitude towards new concerns is in perfect keeping with the traditions of his business.

30. But these remarks do not apply with the same force to the Presidency Banks. Years of prosperity have enabled them to build up vast reserves. They receive State assistance in the form of Government deposits, with and without interest. Their resources are great and in times of crisis they can weather the storm much better than the

ordinary joint stock banks. Is it too much to expect the Presidency Banks to deviate a little from their usual path in order to provide capital food for an infant factory? Good management, expert knowledge, abundant supply of cheap raw materials, and extensive markets for the products, all count for nothing if the chief sinews of war, money, were not forthcoming. The development of an industry, the cotton seed industry for instance, is gradual. There are not too many factories on the field in the initial stage and their financial requirements cannot be more than a couple of lakhs of rupees. If all other things are in favour of an industry in the problematical stage, the Presidency Banks should advance it the necessary money, I do not say recklessly, but with a little slackness of the customary principles of "security." Supposing the worst comes to the worst, and the Bank loses the whole amount so advanced, the loss will only be a very small percentage of its annual profits. The sacrifice is worth making in the interests of the industrial regeneration of the country, the resources whereof they have so successfully exploited for so many years in the past. Let the Presidency Banks give up the rôle of "respectable pawnbrokers" for the sake of a prospective industry at least. Next to Government, they only can afford to make the sacrifices required. I am confident that, with proper finance under suitable supervision, what at the outset would only appear to be a sacrifice, will turn out a very safe investment.

31. I think I may here appropriately quote a paragraph from a book entitled "American Business Enterprise" (being a Report to the Electors of the Gartside scholarships on the results of a tour in the United States of America in 1906-07 by Mr. Douglas Knoop, M.A., Gartside Scholar, and published by the University of Manchester):—

"In Germany the large banks do much to encourage business enterprise by promoting industrial companies subscribing for shares and by being represented on the Board of Directors. In America the banks and banking houses play a large part in the formation of the syndicates which underwrite issues of industrial stocks and securities but seldom have a permanent interest in the manufacturing concerns. In England a manufacturer, as such, receives comparatively little help from the banks."

I shall not be far from the mark if I add that in India, particularly in Bombay, the banks encourage speculation.

32. The German banking method has been open to much adverse criticism, but there is no denying the fact that it has contributed largely to the commercial and industrial prosperity of the country. German funds have been employed exclusively for the development of internal trade and industries, while Germany's foreign trade was financed with money belonging largely, if not entirely, to other peoples. It is notorious that the German gave long credits to his Indian customer. He discounted his bills in London and thus used English money for this purpose (*vide* Appendix B).

Co-operative Societies.

33. The co-operative movement is only a recent growth in this country, and has not been in existence long enough to have any influence on any industry as yet. The societies might play a useful part in the development of agricultural industries, but their resources and activities at present are very limited, and I do not expect much from them in the immediate future in regard to industrial development. Like the new industries, the co-operative societies stand themselves in need of external support.

Limits of Government assistance.

34. Unless I have misunderstood question 14, the answer to it presupposes a discussion of the Government's fiscal policy, the very item exiled from the agenda of the Commission. Take, for instance, the cotton seed industry. There is a large export trade in cotton seed, and the establishment of cotton oil mills throughout the country would naturally bring the oil mills in competition with export houses, and incidentally with English oil mills. Is the question intended to elicit whether in such a case Government assistance should be withheld or whether the assistance, if any given already, should be taken back in the form of a countervailing duty like the excise duty imposed on cotton manufactures? I am afraid every industry which it is sought to foster will come, in due course, in the way of established external trade, and to seek to set any limits on Government aid merely for this reason amounts to negativing the present inquiry. I am for the industrial regeneration of India for the interests of India only and should not place any restrictions on Government help to indigenous industries because they came in the way of somebody else.

Marketing of products.

35. I take it that it is the intention of Government first to develop such industries, as the manufacture of vegetable oils, butter or ghee substitutes, soaps, paper, pencil, sugar, toys, etc., for all of which products India itself affords extensive markets. If so, given the right quality at the right prices, I fail to see why the manufacturers should not be able to market their stuffs without any Government help. The failure in this case is due to the inferior quality of the indigenous products, and it is in this direction that effort is required to be made. Here, as well as in the case of raising capital, self-help is the best form of assistance. Cases, however, may occur, *e.g.*, the sugar industry, where a readjustment of the existing fiscal arrangements may become necessary, but as already pointed out, this is a question beyond the scope of the present inquiry. Any suggestion of bounties or subsidies

is also out of place for the same reason. A bounty or a subsidy is equivalent to an extra duty on the imports of the articles in question and differs only in outward form.

Commercial seums.

36. Commercial Museums should be established on a large scale in the Presidency towns and in every district town on an humbler scale. Their object should be to offer manufacturers an opportunity to study the various articles imported as well as indigenous, and to disseminate information both to them as well as to the people as regards the prices, quality and the sources of supply of the exhibits.

Exhibitions.

37. Exhibitions also should be held on a large scale in important centres more frequently than has been done hitherto. Their educative value is beyond doubt. One of the most successful and the biggest exhibitions I have seen was the one held in 1904 in Bombay in connection with the Indian Industrial Conference. It is a pity the annual holding of this exhibition has been subsequently discontinued for want of funds. The Department of Agriculture, Bombay, hold annual exhibitions, known as Farm Demonstrations at various places, and they are well attended. We have always taken the fullest advantage of these demonstration meetings to bring our cake and hulls to the notice of the farmers. Government will do well to inaugurate a system of periodical exhibitions in provincial towns, supplemented occasionally by inter-provincial exhibitions on a larger scale. If they are of a thoroughly popular character, having shows, amusements, etc., they might perhaps pay their own expenses and as well serve the purpose, *viz.*, that of industrial and commercial development and intercourse.

Sales agencies & trade represen tives

38. The question of sales agencies and trade representatives had better be left to the care of those concerned. I would, however, suggest the form of some such service as is rendered by the American Consuls or American Commercial Attachés in foreign countries. These usually collect useful commercial and industrial information for the use of their compatriots at home. They are also posted with complete information about the various industries, trades, etc., in their own country and politely and willingly give such information to outsiders on inquiry.

Government patr age.

39. I have already dealt with this question in paragraphs 16 and 17. Lists of Government requirements are published in the notices calling tenders, and samples are usually shown to intending tenderers. What is desirable is that tenders for indigenous articles should have preference to those for imported articles, even though such a course may involve a little sacrifice on the part of Government.

40. Banking facilities in respect to the marketing of products are generally provided by the existing banking institutions. In case, however, where it is necessary to extend credits to buyers, local banks should be induced to discount bills of industrial concerns drawn on good buyers just in the same way as the exchange banks discount foreign bills. Such a course will prevent the locking up of a portion of the working funds of an industrial concern. As it is at present, banks accept such bills only for collection.

41. The V. P. P. system, which practically deals with small amounts just in the same way as ordinary demand bills, should be made much cheaper. The rate of commission charged on amounts of Rs. 50 and upwards should be reduced to a level with that charged by bankers.

42. In important centres, also in district towns, warehouses should be opened, and banks should be induced to introduce a system of advances on the certificates of these warehouses that a particular quantity of a particular merchandise has been stored with them and is deliverable on surrender of such certificate and on payment of rents and charges. I am, however, not quite sure if the notions of credit, current among country people, will facilitate the introduction of the warehouse system to any appreciable extent.

Railway rates.

43. Soon after the outbreak of war, the Railway Board issued a circular recommending that railways should give cheap rates and other facilities to indigenous industries, *even at the sacrifice of some income if needs be*, the development of such industries in future more than recompensing (by way of an increased local traffic) the railways for the immediate sacrifice involved. The idea is reflected in the following paragraph appearing on page 45 of "Railway in India: Administration Report for the year 1914-15," Volume I:—

> "The Railway Board have been giving special consideration to the question of the assistance which can be rendered by railways in the development of indigenous industries by the quotation of favourable rates for the carriage of raw material required in manufacture and the carriage of the finished product. They are of opinion that the conditions brought about by the war, which have placed obstacles in the way of the importation of foreign manufactures, render the present time exceptionally opportune for the starting of new enterprises and the revival of old ones. In these circumstances, it was decided to bring matters prominently before the notice of railway administrations."

Mr. R. L. Sutaria.

44. This was a praiseworthy step, at least it appeared so on paper. In practice, however, I am constrained to say that the policy of the Railway Board has been as conservative as it was before the war, and in support of this statement I shall submit my own experience.

45. During the earlier months of the war we received a communication from the Director General of Commercial Intelligence, Calcutta, asking for particulars in relation to our industry. In our reply we casually mentioned the inequality of railway rates and we were asked to submit to that Office the copy of the correspondence which took place between the railways and ourselves. In due course we were advised to submit our case to the Railway Board. We took the hint and sent a long representation to the Railway Board. The outcome of it all was a curt reply from that body that the railways had already given us some concessions and that nothing further could be done.

46. It goes without saying that the present railway rates have been based with a view to encourage exports of produce. The rates, for instance, to a port such as Bombay or Karachi from any interior point are comparatively cheaper than the rates, *cæteris paribus*, between two interior points. The rates on raw produce, again, are cheaper than those on manufactured articles. Add to these the various restrictions as to long or short lead, wagon-loads, carrying capacity, risk notes, etc., etc., and it will be easily seen how hot things are made by the railways for the development of indigenous industries. In India, the railways exist, not for her own industries, but for those in countries far, far away.

47. Take the following table which gives the comparative rates for cotton seed from various points on the Bombay, Baroda and Central India Railway to Bombay and to Navsari (where we have our mills) also the respective distances :—

| From | To Bombay | | | | To Navsari. | | | |
|---|---|---|---|---|---|---|---|---|
| | Miles. | Rate. | | | Miles. | Rate. | | |
| | | Rs. | A. | P. | | Rs. | A. | P. |
| Ankleshwar | 198 | 0 | 2 | 1 | 49 | 0 | 2 | 2 |
| Broach | 204 | 0 | 1 | 9 | 55 | 0 | 2 | 3 |
| Chamargam | 211 | 0 | 2 | 11 | 62 | 0 | 2 | 6 |
| Palej | 219 | 0 | 2 | 11 | 70 | 0 | 2 | 8 |
| Miagam | 229 | 0 | 3 | 4 | 80 | 0 | 2 | 8 |
| Baroda | 248 | 0 | 3 | 6 | 99 | 0 | 3 | 3 |
| Dabhoi | 249 | 0 | 3 | 10 | 90 | 0 | 3 | 5 |
| Bodeli | 274 | 0 | 3 | 5 | 115 | 0 | 4 | 0 |

Could anything be more inequitable than that it should cost half an anna more to carry a maund of cotton seed from Broach to Navsari, distance only 55 miles, than to carry the same quantity of it from Broach to Bombay, a distance of 204 miles?

48. Here is another table—

*Table showing rates and distance to Navsari and Bhavnagar Docks from places on the Tapti Valley Railway.*

| From | TO NAVSARI. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Miles. | RATE. | | | | | | | | |
| | | Tapti Valley Railway. | | | Bombay, Baroda and Central India Railway. | | | TOTAL. | | |
| | | Rs. | A. | P. | Rs. | A. | P. | Rs. | A. | P. |
| Bardoli | 33 | 0 | 0 | 8½ | 0 | 0 | 9¼ | 0 | 1 | 6 |
| Nandurbar | 113 | 0 | 2 | 4 | 0 | 0 | 8 | 0 | 3 | 0 |
| Doudaicha | 135 | 0 | 2 | 9 | 0 | 0 | 8 | 0 | 3 | 5 |
| Sindkheda | 147 | 0 | 3 | 0 | 0 | 0 | 8 | 0 | 3 | 8 |
| Nardana | 155 | 0 | 3 | 2 | 0 | 0 | 8 | 0 | 3 | 10 |
| Amalner | 173 | 0 | 3 | 6 | 0 | 0 | 8 | [illegible] | 4 | 2 |
| *Vid* Amalner | | 0 | 3 | 3 | 0 | 0 | 8 | 0 | 3 | 11 |

| From | Miles. | TO BHAVNAGAR DOCKS. | | | |
|---|---|---|---|---|---|
| | | Rate. | | | |
| | | Tapti Valley Railway. | Bombay, Baroda and Central India Railway. | Bhavnagar-Gondal Railway. | Total. |
| | | Rs. a. p. | Rs. a. p. | Rs. a. p. | Rs. a. p. |
| Bardoli ... | 346 | 0 0 2 | 0 1 11 | 0 0 11 | 0 3 0 |
| Nandurbar .. | 424 | 0 0 10 | 0 1 11 | 0 0 11 | 0 3 8 |
| Dondaicha ... | 448 | 0 1 0 | 0 1 11 | 0 0 11 | 0 3 10 |
| Sindkheda .. | 460 | 0 1 1 | 0 1 11 | 0 0 11 | 0 3 11 |
| Nardana | 468 | 0 1 2 | 0 1 11 | 0 0 11 | 0 4 0 |
| Amalner | 486 | 0 1 4 | 0 1 11 | 0 0 11 | 0 4 2 |

The cost of transporting a maund of cotton seed, according to the above rates, from Amalner, to Bhavnagar Docks, 486 miles, is the same as that from Amalner to Navsari, 178 miles! Also please note the respective proportions of the Tapti Valley Railway, which, for the same distance and, *therefore the same service*, are 2¾ to 4 times higher for Navsari than for Bhavnagar.

49. In favour of the cheaper rates to the ports, it has been urged, that they are designed to meet the sea competition. The railways are quite justified, by offering competitive rates, to secure such traffic as they would otherwise lose. It is, however, supposed that they are in business for profit and that it would not be worth their while to reduce their rates in competition with sea traffic, if such low rates were unremunerative. If, for seed consigned from Amalner to Bhavnagar, the Tapti Valley Railway is satisfied with Rs. 0-1-4 per maund for its share, why, indeed, should it demand Rs. 0-3-6 per maund for similar consignments to Navsari? Or, if the Bombay, Baroda and Central India Railway can carry cotton seed from Broach to Bombay at an average rate of ·10 pie *per maund per mile* without any extra terminal charge, why should it charge on seed consigned from the same station to Navsari, the higher rate of ⅓ pie per maund per mile, *plus* ½ anna per maund *terminal, plus* ¼ anna per maund *short distance terminal?* Distance for distance, the rate per maund per mile for Navsari works out 4½ times the rate of Bombay! Indigenous industries, alas! have to atone for the sin of sea competition.

50. Let us now consider the question on the basis of *cost of service*. In Volume II of the Administration Report of the Railways in India, 1914-15, on page 433, under column 115, the following figures appear against the name of the Bombay, Baroda and Central India Railway :—

"Average cost of hauling a goods unit (*viz.*, 1 ton) one mile"—

| | |
|---|---|
| 1st half (year) - - - - - | 2·81 pies. |
| 2nd half (year) - - - - - | 2·85 pies. |

This gives 2·83 pies per ton per mile as the average, for the whole year, or approximately ·10 pie per maund per mile, the minimum rate sanctioned by Government for first class goods. The railway can safely grant this or a slightly higher rate to our traffic in cotton seed, but they have persistently declined to do so, and continue to charge us rates varying between ·25 and ·33 pie per maund per mile *plus* the long and short distance terminals, *i.e.*, rates 2½ to 5 times their actual cost.

51. Let us illustrate this point by the following two cases :—

(*i*) Nandurbar to Navsari—

Distance 113 miles; actual cost of hauling 1 maund, 11·3 pies; rate charged 36 pies; excess over cost 24·7 pies or about 218 per cent.

(*ii*) Broach to Navsari—

Distance 55 miles; actual cost of hauling 1 maund, 5·5 pies; rate charged 33 pies; excess over cost 27·5 pies or 500 per cent.

While the railway has persistently denied the industry the benefit of a cheaper rate, the exporter in Bombay has been more fortunate. Hundreds of instances could be cited to prove this, but I shall confine myself to only one. Cotton seed from Navsari to Bombay is charged Rs. 0-2-1 per maund for a distance of 148 miles, that is, about ·15 pie per maund per mile. The oil mill in Hull, Havre, or Hamburg gets the benefit for which we at home have to pay. (My point is that the local traffic has to make good the deficit, if any, arising from the cheaper rates to exports.) "Gharna chhokra ghanti chate, upadyane ato joie!" (Gujarati proverb, means literally, the beggar must have flour, although the children in the house are licking the grindstone, *i.e.*, are starving).

52. On page 1063 of the Bombay, Baroda and Central India Railway's Goods Tariff, Volume I, for October 1915, the following rates appear for grain, pulses and common seeds :—

*From Khandwa and* vice versa, *viâ Rutlam and Kankra Khari.*

| STATIONS. | PER MAUND. | | | |
|---|---|---|---|---|
| | PROPORTIONS | | | TOTAL. |
| | Broad gauge. | Tapti Valley Railway | Metre gauge. | |
| | Rs. A. P. | Rs A. P. | Rs. A P. | Rs. A. P. |
| Chalthan | 0 1 0 | 0 0 5 | 0 2 11 | 0 7 4 |
| Bardoli | 0 3 10 | 0 0 6 | 0 2 9 | 0 7 1 |
| Madhi | 0 3 8 | 0 0 7 | 0 2 8 | 0 6 11 |
| Vyara | 0 3 6 | 0 0 9 | 0 2 6 | 0 6 9 |
| Fort Songhad | 0 3 2 | 0 0 11 | 0 2 5 | 0 6 6 |
| Navapur | 0 3 0 | 0 1 0 | 0 2 2 | 0 6 2 |
| Chinchpada | 0 2 10 | 0 1 1 | 0 2 2 | 0 6 1 |
| Khandbara | 0 2 10 | 0 1 2 | 0 2 1 | 0 6 1 |
| Nandurbar | 0 2 10 | 0 1 5 | 0 2 2 | 0 6 5 |
| Ranala | 0 2 10 | 0 1 7 | 0 2 1 | 0 6 6 |
| Dondaiche | 0 2 8 | 0 1 7 | 0 2 1 | 0 6 4 |
| Sindkheda | 0 2 7 | 0 1 7 | 0 1 11 | 0 6 1 |
| Nardana | 0 2 5 | 0 1 8 | 0 1 10 | 0 5 11 |
| Betavad | 0 2 4 | 0 1 8 | 0 1 9 | 0 5 9 |

Here, again, the proportion of the Tapti Valley Railway is considerably lower than that charged on traffic to Navsari. Obviously, the lower rates are quoted to secure the traffic which would otherwise go to the Great Indian Peninsula Railway. Taking an extreme instance, the distance between Betavad and Khandwa, *viâ* Amalner, is only about 138 miles, and the Great Indian Peninsula Railway's charge for this traffic would be, at the first class rate *plus* terminal charges, the same as that of the Bombay, Baroda and Central India Railway by the circuitous route *viâ* Kankra Khari and Rutlam, a total distance of 551 miles, and including the expenses of, at least, one transhipment. The beauty of the rates in the above table is that the charge for the longer distance is smaller than that for a shorter distance for the same weight and description of goods carried *in the same direction.* It is not sea competition, but competition between two railways, that is responsible here for an infringement of General Rule 17 *(b)* which lays down that "when goods of the same description and booked in the same direction are charged at different rates *according to distance*, the charge for the lesser distance shall not exceed the charge for the greater distance." I have not been able to ascertain if the above charges are calculated at different rates according to distance or at a uniform unit rate.

53. Is it too much to expect a railway, which makes such heavy sacrifices in order to secure sea-borne or foreign-rail-borne traffic for itself, to make similar sacrifices in the interests of indigenous industries? But this is exactly what the railways have refused to do. They argue that if an industry is able to pay dividends, the grievance of high rates is imaginary; and that if the industry cannot prosper without cheaper rates and must ultimately be wiped off, well, the loss is not theirs. The railway magnate at best would take off his hat and say, "The industry is dead, long live our export trade!"

54. It might be of interest to know what would be the pecuniary benefit, say to our mill, if the proportions of the *Tapti Valley Railway alone* were reduced to the level of the proportions obtaining for the traffic to Bhavnagar Docks. In a normal year, we require about 6,600 tons of seed, all imported from Khandesh and the Berars—mostly from stations beyond Amalner. The saving to us would be about Rs. 3-8-0 per ton or Rs. 23,000 per annum, just enough to enable us to pay a dividend of 7 per cent. to our shareholders.

55. We now come to the question of rates on manufactured products. Cotton seed, from Navsari to Bombay, as already stated before, is charged at Rs. 0-2-1; as against this, the rate on cotton seed cake is Re. 0-2-9; *i.e.*, eight pies per maund higher. In a wagon of a given capacity, more cake could be loaded than seed, if such a course is permissible. Why the railway should have a predilection for seed is more than I can understand.

56. The rate charged on oil is the ordinary first class rate of one-third pie per maund per mile. For Bombay from Navsari it is Rs. 0-3-10 and I should consider this reasonable, as the oil being a costlier article than either the seed or the cake can bear the burden. Moreover, only a quarter to a third of the carrying capacity could be loaded into a wagon, and under the circumstances we have always refrained from seeking concessions in this rate. I should, however, like to draw attention to one fact. The rate on oil from Navsari to *viâ*

*Dadar* is Rs. 0-4-2. That from Bombay to Madras is Rs. 0-11-3. The total rate from Navsari to Madras under these circumstances should be the total of the above two rates, *viz.*, Rs. 0-15-5. Instead, our consignments from Navsari to Madras have been charged at Rs. 1-10-4. The matter was brought to the notice of the Great Indian Peninsula Railway who said the Bombay to Madras rate was a *port to port* rate and could not be applicable to traffic originating at interior points, although they agreed to reduce their own proportion on the through rate which would then be Rs. 1-7-4. When it is considered that orders are often lost through the difference in price of a few annas per tin, it can be easily understood of what advantage the combined Navsari-Bombay and Bombay-Madras rate (Rs. 0-15-5) would be to a new industry seeking profitable outlets for its products. It has, of course, been open to us to bring the oil first to Bombay and then to re-consign it to Madras under the port to port rate. But this has not been sufficient reason with the railway authorities to apply General Rule 18 (Combined Rate) to our *through traffic.*

57. The concessions given to us by the railways are :—

(*i*) A special wagon rate for hulls. This was obtained after representation to the Local Government, and has been very serviceable to us in securing markets for this product.

(*ii*) A rate of ·18 pie per maund per mile for the cake. This has not produced the desired effect, because, for nearer places, the concession is vitiated by the long and short distance terminal charges, and because of the absence of buyers in wagon-load quantities. The advantage in favour of our traffic to Bombay is also reduced to 3 pies per maund as compared with the old rate for the same reasons. The concession has been practically nominal.

(*iii*) A rate of ·25, against the usual charge of ·33 pie, per maund per mile on the Great Indian Peninsula Railway, for cotton seed to Navsari. This has enabled us to extend our seed purchases to some places where we formerly could not buy.

And for all these concessions, the Railway Board was pleased to vouchsafe to our representation the reply that the railways had done enough for us and that we should ask no more. A parent may as well refuse blanket to the shivering child on the plea that the latter has already obtained a piece of muslin to keep it from winter's cold! We replied to the Railway Board that we were prepared to forfeit all the so-called concessions except (*i*) if we could only obtain cheaper rates on seed on the basis of those for Bhavnagar Docks. There was no reply.

58. I offer the following suggestions :—

(*i*) An industrial concern should be given the advantage of cheap rates on its raw materials, such cheap rates to be on a level with the lowest rate quoted by the railways for similar articles for any reasons whatever.

(*ii*) On the products of the industry, cheap rates should be quoted on the level of those obtaining for similar products exported to interior points from centres like Bombay, Karachi or Calcutta. In the direction of the ports, the rates on products should not be higher than those on raw materials.

(*iii*) No time should be wasted in the reasonable classification of new products. We had to wait nearly two years before cotton seed hulls were classified as "fodder."

(*iv*) Where possible, the restrictions as to wagon-loads, carrying capacity, long and short distance terminals, short or long leads, etc., etc., should be removed, if not entirely, for a reasonable period while the industry is in the making.

(*v*) Sidings facilities should be given where the inward and outward traffic amounts to at least two to three wagons daily.

(*vi*) During the busy months of the year when congestion of traffic necessitates restrictions as to wagon supply, etc., preference should be given to the inward and outward traffic of such indigenous industries as are in the making.

59. I have seen several advertisements in American journals, wherein the competing rail-road companies, knowing well that their prosperity depends on the commercial and industrial development of the districts through which their lines pass, invite enterprising people to start new industries at suitable centres. They offer statistical and other information to would-be investors, and place before them tempting proposals as to sidings, rates, etc. Sometimes they even offer to subscribe or secure part of the capital required for an industry. Will the railways in India follow suit? Echo repeats, "Will they?"

Ocean freights.

60. As there are so many competing steamship lines industries are not likely to suffer in respect of freights to foreign countries. We have always been able to secure freights for our cake shipments at the ruling market rates. As regards exports of oil, the shipping companies have shown a marked aversion for this cargo. It may be due to the fact that the consignments offered were too small, or to the fear that the other cargo might be spoiled by leakages that might develop *en route*. I believe, when the oil industry attains to some

magnitude so that the parcels tendered for shipments are large enough to occupy at least a single hatch in a steamer, the difficulty about freights will automatically disappear under the rules of supply and demand.

*General Administration.*

61. Without criticising the existing machinery of administration, I venture to suggest the following scheme :—

(*i*) There should be an Imperial Department of Commerce, Agriculture and Industries, the present Member for Commerce holding the combined portfolios in the Viceroy's Executive Council.

(*ii*) He should be assisted by—

  (*a*) A Director General of Agriculture, which post may be represented by the present Agricultural Adviser to the Government of India.

  (*b*) A Director General of Commerce and Industries, which post may be represented by the present Director General of Commercial Intelligence.

(*iii*) Under these Directors General may be appointed the provincial—

  (*a*) Directors of Agriculture, with their departments as they exist now.

  (*b*) Directors of Commerce and Industries, as they exist in Madras, the United Provinces and the Punjab. Bombay and Bengal, to my knowledge, have no such directors, and are to that extent behind the other provinces.

(*iv*) The duties of the Directors of Agriculture should be—

  (*a*) Statistical, *i.e.*, to collect and disseminate statistical information about crop movements.

  (*b*) Education, *i.e.*, to maintain and supervise agricultural schools, colleges, libraries and laboratories.

  (*c*) Farm practice, *i.e.*, conducting experimental stations, holding farm demonstrations, assisting co-operative movements, etc.

(*v*) Similarly, the duties of the Directors of Commerce and Industries should also be threefold, *viz.*—

  (*a*) Statistical, *i.e.*, to collect and disseminate information about movements of trade and industries.

  (*b*) Educational, *i.e.*, controlling commercial and technical schools, colleges, libraries and laboratories.

  (*c*) Appointment of Commercial Special Agents and Attachés to study, investigate and report on foreign and domestic trade methods, requirements, possibilities, etc. Also appointment of experts to investigate and advise both the Government and the public on industrial possibilities and to conduct industrial, geological and mineralogical surveys.

(*vi*) The laboratories attached to the two departments should be well equipped to meet local needs. There should also be facilities for research work on an humbler scale.

(*vii*) A central research institute, like the Imperial Institute of London, should be established in a business place like Bombay, and not in places far away like Bangalore or Pusa where the existing institutes have, owing to their inaccessibility to a great part of the public, acquired a purely academic character.

62. I do not think the present laws in relation to land assessments are such as affect industries in a serious way, except where the industry is of a considerable magnitude requiring the alienation of hundreds of acres of land. I should, however, suggest the following modifications :—

(*a*) The penalty on alienated land used for factory buildings should be reduced, if possible.

(*b*) No penalty should be levied on open plots of lands belonging to a factory not actually occupied by factory buildings, but used only for storing sundry articles such as coal, etc., in the open.

(*c*) No buildings are allowed within 150 ft. (sometimes a larger margin is required) of the railway boundary. This restriction should be reduced to a reasonable limit, say of 60 to 75 ft.

**The Cotton seed Industry.** 63. If there is any industry in India which bids fair to attain a magnitude second only to that of the cotton industry, it is, in my opinion, the cotton seed oil mill industry. We have an abundance of raw material, nearly 15 lakhs of tons of cotton seed annually, with every possibility of an increasing crop in the future. Of this, about 8 lakhs of tons is exported, and 1½ lakhs of tons may be needed for sowing purposes. There is thus a balance of 11½ lakhs of tons seed which, though not actually wasted, is certainly used in a wasteful manner as cattle food. I say in a wasteful manner, because the oil in the seed is much in excess of the actual food requirements of the animal fed. This fact has been proved beyond doubt. The animal system rejects the excess oil as is easily demonstrated from the presence of oil globules in the excreta of cattle fed overnight with cotton seed. The establishment of the industry would recover this wasted oil without appreciably affecting the country's store of cattle food, as will be apparent from the following figures :—

11,50,000 tons clean cotton seed would yield :—

1,60,000 tons oil.
5,00,000 ,, cake.
4,90,000 ,, hulls.

The hulls are an important article of coarse fodder, very useful and beneficial in ordinary times, and particularly so in famine years. The cake is a useful concentrate.

The dietetic value of the oil, properly refined, is now beyond doubt. Not only can it be used as an article of food by itself, but it furnishes an important basis for the manufacture of artificial butter or ghee, an article so much required in India.

64. The entire Indian crop of cotton seed is capable of supporting 200 cotton seed oil mills, each with an average capacity of crushing 6,000 tons seed per annum. This would represent an investment in machinery and buildings of close upon four crores of rupees—not a very difficult task for a country which provides, at a single stretch, capital by the half crore for a spinning and weaving mill or by the crores for such concerns as the Tata Iron and Steel Company, Limited. The gain to national wealth contributed by the industry will also be tremendous : witness the following figures :—

| | Rs. |
|---|---|
| Value of 160,000 tons oil at Rs. 400 per ton | 6,40,00,000 |
| ,, ,, 500,000 ,, cake at Rs. 50 per ton | 2,50,00,000 |
| ,, ,, 490,000 ,, hulls at Rs. 20 per ton | 98,00,000 |
| ,, ,, By-products, say | 12,00,000 |
| Total | 10,00,00,000 |
| Value of 11,50,00,000 tons cotton seed at Rs. 50 per ton | 5,75,00,000 |
| Net addition to national wealth | 4,25,00,000 |

This figure, *viz.*, Rs. 4,25,00,000 exactly represents the money value of the loss to the country at present by the use of cotton seed directly as cattle food.

65. Here is a list of the world's cotton seed oil mills (operating in 1914).

| | |
|---|---|
| United States of America | 885 |
| England | 50 |
| Russia | 32 |
| Germany | 9 |
| France | 5 |
| Austria | 1 |
| China | 9 |
| India | 1 |
| Egypt | 5 |
| Turkey (in Asia) | 4 |
| Brazil | 7 |
| Peru | 11 |
| Mexico | 4 |
| Chile | 1 |
| Venezuela | 1 |
| Total | 1,025 |

It is probable that some of the English, Russian, German and French mills mentioned above do not work cotton seed exclusively. Of the five Egyptian mills, four have capacities each four times larger than ours and yet they have been unable to meet the demand for the oil in that country itself. What a pity that India whose production of cotton seed is second only to that of the United States of America lags miserably, with a single mill to her credit, behind such countries as China, Turkestan (Russia) and Asia Minor (Turkey)!

66. As regards my suggestions for the establishment of cotton seed oil mills in India I submit, herewith, as Appendix A, copy of a letter, dated 23rd August 1916, and addressed by me to G. A. Thomas, Esq., I.C.S., Secretary to the Indigenous Industries Committee, Bombay. The proposals contained therein are in reference to conditions existing in the Presidency of Bombay, but they can be adapted, *mutatis mutandis*, to any desired locality.

Allied Industries.

67. The industries, which can flourish profitably side by side with the cotton seed industry, are:—

(i) The soap industry.

(ii) The alkali industry, having for its object the manufacture of caustic soda.

(iii) The compound feeds and fertilizers industry.

(iv) The manufacture of artificial butter or ghee.

(v) The manufacture of hardened fats by the new hydrogenization process. (The liquid oils differ from the solid fats in that the former contain a molecule of hydrogen less than the latter. The new process aims at supplying this deficiency by passing nascent hydrogen through the oil in the presence of a catalytic agent. The hydrogen, under given conditions, unites with the oil and gives rise to a solid fat, suitable for edible or industrial purposes according to the quality of the oil used. The industry is now successfully introduced in America, England, Germany and France, and only want of funds has prevented us from taking it up here. The cost of manufacture is small, but the initial outlay is considerable (about Rs. 40,000 for the smallest outfit).

All or some of the above industries can be taken up as side-lines by a big cotton seed oil mill having its own refinery.

## APPENDIX A.

(Referred to in paragraph 66.)

Dated Bombay, 23rd August 1916.

From—R. L. Sutaria, Esq.;

To—G. A. Thomas, Esq., I.C.S., Secretary, Indigenous Industries Committee, Bombay.

With reference to the conversation I had the honour of having with you the other day in company with the Hon'ble Mr. Lalubhai Samuldas, C.I.E., on the question of establishing cotton seed oil mills in connection with ginning factories with a central refinery for every group of such mills, I now beg to submit my views on the subject. My labours will be amply repaid if the suggestions made by me herein will be of any use to your Committee in working out a practical scheme to introduce the cotton seed industry in this Presidency on a scale it certainly deserves.

2. I understood from our conversation that you had in view some suggestions made by Mr. Y. G. Pandit in his Report (1915) to the Government of Bombay on the Oil Pressing Industry of the Presidency. Similar suggestions were also made by the late Mr. Noel Paton in 1906-07. Both these gentlemen, however, assumed that a majority of ginning factories in this country have surplus horse-power. In fact, this is not the case. A second suggestion is that the ginneries work only a few months of the year and that, therefore, the power which remains idle for a greater part of the year might, with advantage, be made available for cotton seed crushing. This is quite feasible.

3. In support of these suggestions, the instance of America is cited. This, in my opinion, is a mistake, as economic conditions in India and America are not alike. Here, in India, cotton seed is itself appreciated as a feeding stuff by the ryot. It is also in good demand by exporters for European oil mills, who look upon India and Egypt as their chief sources of this raw material. Cotton seed here, therefore, always commands a higher value than in the Southern States of America, where the export or local demand for it is infinitesimal compared with the gigantic crop. In the United States, again, linseed and cotton seed are practically the only oil seeds. Here, there are more than a dozen varieties available, with popular prejudice strong in favour of their products. In the States, the farmer is the best patron of the cotton seed mill, as he would much prefer the hulls and cake to whole seed for feeding his farm stock. Here, the farmer is the competitor of the oil mill in the purchase of raw seed. You will thus see that the task of establishing this industry in India is rather up-hill, as directly selling the seed itself to willing buyers offers equally good chances to the dealer of making a good profit.

4. If, however, the question is properly tackled, I believe, the industry can be gradually built up. Cotton seed oil, inasmuch as it has to be refined before it can be used for edible purposes, is the cleanest and best vegetable oil and can easily compete with the popular oils, and even with ghee in due course. When the farmer is sufficiently informed about the better feeding values of hulls and cake, he will give up his prejudice in favour of the seed, thus offering better opportunity for the outlet of those products and reducing the competi-

ion in seed. The export demand, though great, is not big enough to handicap the industry, as it takes at best only an eighth to a seventh of the whole cotton seed crop.

5. The following is a financial estimate of a crude cotton oil mill attached to a ginery :—

(*a*) Capital Investment :—

Engine and boiler—existing power plant to be used.

| | Rs. |
|---|---|
| Cleaning and decorticating machinery - - - | 3,000 |
| Crushing plant - - - | 12,000 |
| Cake grinding machinery - - - | 3,000 |
| Extra building sheds, say - - - | 7,000 |
| Total - | 25,000 |

(*b*) Working of such a mill on the basis of 1,000 tons seed per season :—

| | Rs. | | Rs. |
|---|---|---|---|
| To 1,000 tons seed at Rs. 50 per ton - | 50,000 | By 115 tons crude oil at Rs. 340 per ton - | 39,100 |
| ,, Working expenses at Rs. 12-8 per ton - | 12,500 | ,, 400 tons cake at Rs. 60 per ton - | 24,000 |
| ,, Depreciation at Rs. 10 per cent. - | 2,500 | ,, 400 tons hulls at Rs. 15 per ton - | 6,000 |
| ,, Net profit - | 4,100 | | |
| Total - | 69,000 | Total - | 69,100 |

A net profit of Rs. 4,100 equivalent to nearly 16 per cent. on the capital outlay.

In the above estimate I have taken the average prices. In some districts, however, cotton seed can be had as low as Rs. 40 per ton between January and April, while in Gujarat, the price is never lower than Rs. 58 per ton. For the same reason the products can be sold at proportionately higher prices in Gujarat. The margin of profit from district to district is likely to vary but it is not likely to fall below Rs. 3,000 or 12 per cent. on the invested capital.

6. A central refinery can be profitably established for a group of not less than six mills. The total investment cost will come to Rs. 40,000 for machinery and buildings. The working results woud be :—

| | Rs. | Rs. | | Rs. |
|---|---|---|---|---|
| To cost of 660 tons crude oil at Rs. 340 per ton. - | | 2,24,400 | By refined oil 594 tons at Rs. 420 per ton - | 2,49,480 |
| | | | ,, Soap stock 100 tons at Rs. 75 per ton - | 7,500 |
| ,, Expert's salary | 5,000 | | Total - | 2,56,980 |
| ,, Staff's salary | 2,400 | | | |
| ,, Caustic soda | 1,800 | | | |
| ,, Fuel | 3,600 | | | |
| | | 12,800 | | |
| ,, Net profit - | | 19,780 | | |
| Total - | | 2,56,980 | | |

Here also I have taken average figures, which should be modified with reference to prices ruling at the locality selected.

The depreciation in the refinery is not very great, about 5 per cent. being more than enough. The net profit therefore is Rs. 17,780, *i.e.*, about 45 per cent. If each crude oil mill is equally interested in the refinery as regards capital and the quantity of crude oil sent, the share of each mill amounts to approximately Rs. 3,000. Add this to the profit of crushing and the combined investment would yield about 22½ per cent.

7. You asked me to submit a scheme in which our own refinery can be used as the central one to start with. Without committing myself or my firm, I suggest as follows :—

Crude oil mills should be put up either independently or in connection with ginneries in Navsari, Surat, Broach, Nandurbar, Amalner or Jalgaon. There should be at least five in number. Assuming that these mills crush on an average 1,500 tons seed, each will be in a position to send us about 165 tons crude oil. Our own output of crude oil per annum will be about 825 tons, that, is, equal to the total crude oil sent by the five mills. We refine the whole crude oil, *viz.*, 1,650 tons for the common account, with the following results:—

| | Rs. | | Rs. |
|---|---|---|---|
| To 1,650 tons crude oil at Rs. 340 per ton | 5,63,000 | By refined oil 1,452 tons at Rs. 420 per ton | 6,09,840 |
| ,, Refining expenses at Rs. 20 per ton | 33,000 | ,, Soap stock 300 tons at Rs. 100 per ton | 30,000 |
| ,, Profit | 43,840 | | |
| | 6,39,840 | | 6,39,840 |

Out of this profit should be allowed to the refinery Rs. 2,500 for depreciation plus Rs. 6,000 for interest on their investment. This would leave a balance of Rs. 35,840. From this has to be deducted, again, about Rs. 9,340 for interest on capital required to finance the business, leaving a surplus of Rs. 26,000. This should be divided, in the first instance, equally between the refiners on the one hand and the crude oil mills on the other hand. The latter's share, *viz.*, Rs. 13,000 may then be divided amongst the mills in the proportion of the tonnage of crude oil.

8. With regard to Government help in developing the industry, I make the following suggestions:—

(*a*) The Bank of Bombay should be moved to accommodate the oil mills and the refinery, both as regards capital expenditure and finance for working the factories. Banking facilities of this kind are entirely lacking in the districts, and even where they do exist industrial concerns and securities are not looked upon favourably by the banks. In America and Germany industrial concerns can easily raise money on their debentures from banks.

(*b*) The Department of Agriculture should induce the ryot to use cotton seed products in preference to whole seed.

(*c*) Railways should be asked to modify their tariffs with special reference to the needs of the industry.

(*d*) Municipalities should be requested to remove octroi duties from cotton seed products and to use such products so far as possible for their draught cattle.

(*e*) An export duty should be imposed on cotton seed.

(*f*) Establishment of such side industries as soap making, stearine making, etc., should be encouraged.

9. The oil mills themselves should group together to form a sort of association and should be advised to conduct:—

(*i*) A central laboratory, preferably attached to the refinery, where the analysis of seed, hulls, cake, may be carried on for the information and better guidance of the members. Such a laboratory could be equipped for the special purpose above referred to at a cost of about Rs. 1,000. The services of a chemist can be engaged for Rs. 50 to Rs. 60 per month and the laboratory may be maintained by contributions from members or by making to them regular charges for analytical work done for them.

Such a laboratory can be made further useful by adapting it, at a small extra cost, to agricultural needs and by undertaking to advise the agricultural population of the district as to soil analysis, manures, crop diseases, etc.

(*ii*) A bureau of publicity, which should disseminate literature concerning cotton seed products, and prepare the people for the reception of them. Advertising is a powerful factor in selling new products and should be rigorously carried on by those engaged in new industries.

10. I enclose some literature issued by my firm and I trust you will find it interesting.

## APPENDIX B.

(Referred to in paragraph 32.)

### ENGLISH AND GERMAN BANKING METHODS.

(*Extracts from the "Underwar" A Reasoned Statement of the True Strategy involved in the "War upon Germany's Trade." By A. G. Whyte and T. C. Elder, The Electrical Press, Ltd., London, 1914, pages 98, 99, 100, and 101.*)

"*Bank managers and directors know little or nothing about manufacturing industry. They are experts in the valuation of paper; but trade is not their business at all. On the contrary, German banks were so deeply interested in manufacturing that in some conspicuous cases factories were in a sense more like departments of the bank than outside clients. But then the German bank directors had three influences turning them into this path.

---

*English.

1. Their head offices were not situated in a capital which was a centre of international money-changing and bill-broking, so that they were obliged to give more attention to trading.

2. Their directorate was more intimate with manufacturing business, and great study was given to this industry.

3. They could depend on their Government ensuring a square deal to home manufacturers. The factories that they financed were not liable to unrestricted competition from abroad.

Having his base of operations in the home market, the German financier-manufacturer could go ahead in his foreign campaigns. Here he used several powerful weapons.

His Government would obligingly support him with its whole diplomatic power. He could "dump" his goods to make a market, without feeling any temporary inconvenience, because his standing charges were paid by his home market. And, finally, he was prepared, if necessary, to finance his customer by giving him long credit. Very often he did this with British money. He used the London bill-broking and banking system for all it was worth. London was a most invaluable clearing house for his foreign transactions, and, as a matter of fact, the City of London, was made, in this respect, far more useful to the German manufacturer than to the British.

So much may be advanced in excuse for our British joint stock banks that they could earn 20 per cent. dividends without studying more closely the needs of our manufacturers, and that the Government which is now supporting them never made any move towards supporting the factory owners from whom they derive their strength.

All that the British bank would do for the manufacturer was to let him have an overdraft, if he could find security. He could pawn some of his property, but he could not finance his prospects. The banker took no more interest in the life of his business than a pawnbroker would take in the domestic troubles of his customers.

If money was required for extension of works or for any other phase of trade expansion, it was necessary for him to approach the other class of financial houses who assist at the birth of new securities, nurse them for a time, and then unload them on the public. Then, again, he would be dealing with people who did not understand his business or wish to have any permanent interest in it; but were merely concerned with the possibility of retailing blocks of bonds or shares at a profit to themselves.

It is a perfectly safe claim to make that for the most part British traders do not understand finance, and that British financiers do not understand trade.

Circumstances have made them both what they are. It is largely because of British manufacturing enterprise that London has become a great international money market; but our own industries are not apparently benefited by this development. The great finance houses have little preference for one country as against another. A scheme put on their desks for establishing a new industry in England competes for attention with a Russian gold mine, a Brazilian railway, and oil property in Persia. What determines their choice? Chiefly, if not solely, if the likelier prospect in regard to the fickle taste of the investing public. Everyone concerned with finance is always looking through a telescope with his mind's eye to catch an early glimpse of some indication of a coming "boom." It may be rubber, or oil, or gold, or motor cars, and, if it comes in a genuine and established form, then it is easy to get ventures of that particular type financed on advantageous terms."

## APPENDIX C.

### COMMERCIAL AND TECHNICAL EDUCATION.

*(Extracts from "American Business Enterprise," by Douglas Knoop, M.A., Gartside Scholar, Manchester University Press, 1907.)*

NOTE.—I have refrained from touching the questions on commercial and technical education, not being competent to pronounce any definite opinions on the subject myself. It is a common complaint that the Universities in India have produced a class of men, whose education has been purely academic, and who generally choose one of the "professions" (said to be crowded) as their only alternative for earning their bread. The following extracts are submitted with a view to inform the Commission as to how the question is tackled in America and to enable them to ascertain if similar methods can be successfully adopted in this country. I respectfully decline to submit myself to any (oral) cross-examination on this subject. R. L. S.

"Of recent years there has been in the United States a very considerable demand among members of the commercial community for university men. This applies particularly to men with a technical training, but it is expected of them that they shall be more than mere chemists, engineers, etc. Their education is to fit them for dealing with men and managing businesses. With a view to this end they study economics, generally of a very practical kind : the methods and policies of the large trusts, the organization of labour and its relation to industrial management, the modern problems of industrial finance such as the advantages and disadvantages of issues of common or preferred stocks or bonds (*i.e.*, debentures), the reasons for making improvements out of capital, or out of profits, a description of the negotiations for underwriting a new issue of stock or bonds, etc. At the Massachusettes Institute of Technology every student has to take at least one course in economics, and many take more. At Harvard the Economics Department is the second largest department in the University and its courses are followed by more than fifteen hundred students; and this is typical of what is happening at most of the institutions for higher education all over the country.

The demand among businessmen for university graduates is not limited to those with a technical training. Frequently those who have followed a purely academic (*i.e.*, Arts) course are preferred, the firm giving the men whatever special training they may require. Railroads, insurance companies, brokers and banking houses are among those who are anxious to employ college men. Along some lines the demands are so great that the universities cannot supply sufficient graduates. Thus the New York banking houses are anxious to obtain men with a good economic and statistical training to work in their investigation departments, which make very careful inquiries before the firms enter upon any scheme for underwriting the new stock and bond issue of any railroad or industrial concern.

In autumn, 1906, a new directory of living graduates and former students of Princetown University was published. From this book figures have been compiled which show that the American college graduate of to-day is more and more choosing a business, rather than a professional, career. Exclusive of those graduating in 1906, there were a year ago 7,190 living alumni of Princetown. Of the 6,522 classified according to their occupation, 2,285 are in business, 1,498 in the law, 924 in the ministry, 699 practising medicine, 433 teachers, 290 engineers, 104 journalists, 50 ranching and farming, 50 gentlemen of leisure, 41 students, 34 in the army, 31 in the civil service, 26 architects, 19 chemists, 10 artists, 9 authors, 7 in the navy, 5 librarians, 4 musicians and 4 dentists. When one remembers that the courses offered by Princetown are of an essentially academic and non-technical character, some of the above quoted figures are truly remarkable. On the one hand, a third of the graduates are in business and nearly a quarter engaged in law; on the other hand, the number of gentlemen of leisure and civil servants educated at Princetown is practically a negligible quantity, and the same thing is no doubt true of the other leading American Universities.

There are very many young Americans in business who have not enjoyed the advantage of a university education, but who have attended evening classes in various subjects. These courses are generally of a very practical kind as contrasted with those offered by English Universities. As an example a description may be given of a few of the evening lectures held in the New York University School of Commerce, Accounts and Finance. In the class in Business Organization and Statistics, a study is made under the guidance of a trained accountant of the internal management of a large business: the differentiation of the duties of the various departments, the advantages of various methods of organization as regards economy and the preservation of goodwill, trade marks, local interests, etc. The course treats of the organization of corporations controlling different branches of industry, the relation of one branch to the others, and the relation of each to the parent company. In view of the complex character of modern commercial and industrial undertakings in America, a course of study along the lines indicated can be of great advantage to young men who are aspiring to managerial positions.

It does not require a very long stay in the United States to become convinced of the very important part played by advertising in modern business systems, and this is recognized by the university organizing a class in this subject. The channels of trade and the circulation of newspapers and magazines are discussed; the literature and typography of advertising are treated, and the mechanical and accounting details explained. Particular attention is given to financial and transportation advertising

A course especially designed to be helpful to men going into insurance companies and into banking and stock and bond houses, is that dealing with investment and speculation. It aims at qualifying the student for that critical analysis of a security, which is necessary to a sound estimate of its value. It treats of topics like the following: the source of funds seeking investment; the nature and value of securities issued by the Governments of the leading countries of the world; municipal bonds and the condition determining their legality; the various classes of securities issued by street railways; why the bonds of industrial corporations are not popular; railroad stocks and bonds. The advantages of different classes of bonds for the investor, as well as for the corporation. are likewise considered. The course also treats of the nature of speculation and describes the process by which it is carried on in stock and produce markets. In the class on corporation(*i.e.*, Company) finance a practical study is made of the financial organization and conduct of large corporations, especially railroad and industrial combinations; in that on reorganizations and analyses of reports, the annual reports over a series of years of each of several railroad and industrial companies are analysed and compared with a view to showing students how to verify their income statements and to form a judgment as to the efficiency of their management. A study is made of several companies during insolvency and reorganization, showing what problems arise, how they are solved. and as far as possible, from a study of conditions existing during and before insolvency, how the particular solutions were arrived at.

Quite recently a course in practical salesmanship has been instituted at the New York University. The official announcement says: "Its one aim is to give the student greater money-making, business-building and result-producing ability." It deals *inter alia* with the personality of the salesman, his health, dress, expression, fluency of speech, tact and enthusiasm, the study of the customer, how to attract, interest, convince and persuade, how to frame selling arguments and to present them in the most effective order; it treats of sales by letters, catalogues and advertisements; of the laws governing sales; of selling organizations, and of selling methods and systems.

One other subject to which a great deal of importance is attached in American evening schools is accounting. At the New York University more than a dozen courses are offered in this subject alone. Thus there are classes in accounting practice, accounting procedure, theory and practice of cost accounts, philosophy of accounts, auditing accounts, and railroad accounts and statistics."

ORAL EVIDENCE, 22ND NOVEMBER 1917.

*Mr. G. A. Thomas.*—*Q.* In paragraph 9, under the head of "Government assistance", you think that the Government should guarantee the possibilities of any industry; and say, "steps should forthwith be taken to recommend both the proposer and his plans to some capable financier." That is to say, you want the Government or a Government officer to guarantee the possibilities of any scheme that is placed before them?—*A.* I do not wish that Government should guarantee, but if the Government think that a scheme is feasible, they should strongly recommend it. Such a recommendation would not amount to a guarantee.

*Q.* That puts a great deal of responsibility on the Government officer?—*A.* I simply put the responsibility of recommendation.

*Q.* The responsibility of recommending a scheme is a very heavy responsibility?—*A.*—I do not think so.

*Q.* What would be the result if a scheme failed; would not the Government officer and also the Government themselves have to bear the blame?—*A.* I do not think the public would blame the Government for failure. The public have to take chances.

*Q.* But if the Government officer took upon himself to recommend a certain industry to capitalists, and the industry failed, he would lose prestige, and his recommendations would lose their value?—*A.* I do not agree with you.

*Q.* Supposing four or five schemes recommended by the Director of Industries all proved failures, do you think capitalists would take up any schemes in future?—*A.* They would. In business you have to take chances on both sides, and people understand this.

*Q.* Why should the Government officer make a recommendation to a particular financier; why not openly to the whole public? You say, "steps should forthwith be taken to recommend both the proposer and his plans to some capable financier." Has the Director of Industries to select a friend of his who may be likely to be interested in taking up a particular scheme? Why should not his recommendation be open to the public; to anyone to take up? Why should he recommend a scheme to a particular man?—*A.* It should be recommended to a man who is in a position to influence the public as regards the raising of capital. Government help in recommending several schemes to the public by the publication of monographs, but they have not produced any results.

Those who are interested in the subject read them, but no tangible results are produced. If Government study a scheme and think it is feasible, and recommend it to a financier, he is likely to be interested and may help in the raising of the necessary capital.

*Q.* Do you think that financiers would wait until Government recommended schemes?—*A.* Generally I find that financiers in Bombay are too busy to listen to anybody or everybody.

*Q.* Is that the case with a firm like Tata's?—*A.* Certainly not.

*Q.* You suggest here Advisory Committees. Since these Advisory Committees would consist largely of businessmen, would they be likely to take up schemes themselves?—*A.* They may take them up.

*Q.* You don't approve of demonstration factories?—*A.* No.

*Q.* Will you tell us exactly why?—*A.* Because there is no need of them. Those who want to go in for any industry are supposed and expected to study the details of the industry, and they must carry out the details themselves.

*Q.* But experience has shown that a great many people go in for new industries, such as oil seed crushing, who have failed, and only a few have been successful. Do you not think if Government had had demonstration factories from which these people would have taken advice, they would have been successful and not have failed?—*A.* Demonstration factories would serve only this purpose that they would show to the public various products manufactured and how they are made. As regards commercial success, demonstration factories would not prove anything.

*Q.* They would at least show what are the proper methods of conducting industries, and what is the best machinery to be used, and the kind of expert to be employed?—*A.* Even as regards that, factories differ individually, and if Government set up a standard, people might follow it blindly.

*Q.* But surely they would be less likely to fail if they were in possession of experience gained at a Government demonstration factory?—*A.* That they can obtain in any existing factory.

*Q.* They can? I am surprised to hear it! Then you say, "Factory-owners, in their own interest, generally are on the lookout for improved methods and machinery and take advantage of these if funds permit." But surely the ordinary privately-owned factory can hardly experiment with different kinds of machinery?—*A.* No, but if a factory is progressing, and if they see that anything new is placed on the market, if funds permit, they can take advantage of that.

*Q.* How often would funds permit?—*A.* That would depend on the financial condition of the factory itself. I do not suppose that Government themselves would try different kinds of machinery and show them to the public. If Government set up a demonstration factory they would also confine themselves to whatever machinery they set up themselves. On the contrary there are different firms of machinery manufacturers, and they demonstrate their own machinery with advantage to the public.

*Q.* Can they not best do that in a central factory to which the small owners can come or send their men to study their machinery?—*A.* They can do that in the shops or show-rooms of the several machinery manufacturers also.

*Sir D. J. Tata.*—*Q.* With reference to your remarks regarding the closing of a cotton seed mill rather prematurely in 1913, are you aware if this was taken up as a commercial enterprise or merely as an experimental thing?—*A.* It was taken up as an experiment.

*Q.* Don't you think that a firm that is interested in the advancement of industries would find it better to carry on an experiment at some cost, in order to prove whether a thing is likely to be successful or not? And are you aware that all this was undertaken because certain machinery which claimed to extract oil, and decorticate the seed, had failed; and this firm was asked to see if it could make it successful?—*A.* I do not know much about that; but I know that your decorticating machinery was quite different from the usual type, and I know that you were asked by a London firm to see if it could be worked in India.

*Q.* That is so. Well then, it was not a real commercial undertaking. It was something taken in hand to try and prove if it was possible or not to try and start an oil factory in India.—*A.* I know the experiment as regards the products was successful, and I do not understand why it stopped at that stage. You could easily have turned it into a commercial proposition.

*Q.* The machinery was not all complete. The plant that was sent out was incomplete.—*A.* At the time your mill was working, you were in a position to obtain further machinery from elsewhere.

*Q.* But it was a case of experimenting with this particular type of machinery.—*A.* If this particular type was found unsuitable, it should have been given up.

*Q.* That is why it *was* given up; because this particular type of machinery was tried and found unsuitable.—*A.* But it was only part of the machinery that was unsuitable, not the whole of it.

*Q.* They had no proper men to work it, and could not get experts who understood the working of this type of machinery. In addition to that the plant was incomplete. It was a faulty patent. The lay-out was not what it should have been. And of course the site selected was not suitable. It was selected because it was close to our mill, and somebody could attend to it. It was really to try the machinery. Leaving that alone, what is the machinery that you have, and where did you get it from?—*A.* We got our machinery from America, and most of ours is just the same as yours, only ours differed in regard to the decorticating machinery. As regards our refinery, we made everything here and did not import anything excepting filter presses and pumps; so our refinery also differed in detail from yours.

*Q.* In the case of the various other attempts that have been made to start the oil business, what machinery did they have?—*A.* They usually had English.

*Q.* What made you go in for this American machinery?—*A.* At the time we were considering our scheme, your machinery had already arrived here. I am telling you a private thing. You had an expert at the time, whose name was Wood; he succumbed to small-pox. I consulted that gentleman; he would not give out anything to me, but ultimately he came round when I hinted that English machinery was very good and all that. He said, " No, Mr. Sutaria, if you want to crush any other seed, you are all right to have English machinery, but if you want to crush cotton seed, you must get your machinery from America." Mr. Wood's advice confirmed my opinion, and that made me go to America for our machinery.

*Q.* None of the mills that failed tried any but English machinery?—*A.* No.

*Q.* In paragraph 14 you say, " In my opinion, Government should not themselves undertake to supply machinery on the hire-purchase or other system. A free hand should be allowed to the factory management in the selection and purchase of the necessary machinery, and a loan may be granted for that purpose on suitable terms." Is not machinery sometimes purchased without expert advice, and the people suffer?—*A.* Well, as a matter of fact, people do take expert advice, and the expert generally happens to be their own engineer. It is well known that in the machinery trade the engineers take their masters to the firms who may pay them the best commission! I am afraid that if Government adopted this system of giving machinery on the hire-purchase system, even the Government official may succumb to that temptation.

*Q.* You say, " Government should not guarantee the purchase of the products of an industrial concern." Is that not a very sweeping assertion?—*A.* I have qualified it later on.

*Q.* Would it not strengthen the financial position of a concern if there was a certain guarantee of purchasing the output to a certain extent?—*A.* I have said, " A Government purchase guarantee is sure to have similar effects, unless it is for a short period only, so as to afford a company some relief until they are able to dispose of their products through the ordinary trade channels." I mean that in the beginning of a company's career, Government may guarantee purchase of products; but that such guarantee should be limited only to the initial stage.

*Q.* Quite right; that is what everybody expects. They don't want a guarantee of this kind to be permanent; but only in the initial stage. In this connection I want to congratulate you on several sentiments you have expressed here. For instance, with regard to Government assistance you say, " It is to the interests of the people themselves that they should be taught to stand on their own legs in matters industrial." I think this is the whole secret of success; because nearly every witness who comes here cries out for Government assistance in everything, and does not want to do anything himself. Later you say something very similar in every way, and I heartily sympathize with you in these sentiments. Under the head of " General Administration " you say, " There should be an Imperial Department of Commerce, Agriculture and Industries, the present member for Commerce holding the combined portfolios in the Viceroy's Executive Council." Don't you think that it would be too much for one man to take up commerce and industry on his own shoulders; would you not like to divide these duties?—*A.* I do not think so, because the working of the details would be divided.

*Q.* You say, " A central research institute, like the Imperial Institute of London, should be established in a business place like Bombay, and not in places far away like Bangalore or Pusa." Places far away from where?—*A.* From Bombay.

*Q.* Is that the only business centre you can think of, in which this research institute should be located?—*A.* So far as the western presidency is concerned, Bombay is the biggest place of business.

*Q.* Pusa will feed Bengal, and Bangalore will feed Madras.—*A.* Even then they are far away from business centres like Calcutta and Madras.

*Q.* Not so very far; Bangalore is within reach of a business centre like Calcutta.—*A.* I think such an institution should be in a provincial capital, so that merchants should also be able to take advantage of it.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* In regard to the financing of industries, in paragraph 30, you say, " But these remarks do not apply with the same force to the presidency banks." Do you know that the presidency banks work under a charter?—*A.* I knew it the other day when one of the witnesses said so. He said that they were under a charter not to advance long period loans.

*Q.* And they don't give advances without two securities; at the same time they don't give on block.—*A.* And my claim is that they should be made to do that sort of business now.

*Q.* And they should also risk money?—*A.* Not their capital; only a minor percentage of their profits.

*Q.* How are they to know that the industry is a safe security? If you start a cotton mill, how are they to advance money merely on your assurance?—*A.* They would study the details of the scheme.

*Q.* How are they to study?—*A.* They have their Board of Directors; they have also an Inquiry Department; the Inquiry Department can make inquiries.

*Q.* What is the work of the Inquiry Department? What is the staff? Their duty is to inquire into the financial conditions of persons and not with regard to the value of machinery.—*A.* These duties can be given to the same men.

*Q.* And sometimes they have to risk their money?—*A.* They have to risk money to a certain extent.

*Q.* Don't you think these functions ought to be given to industrial banks?—*A* We have no industrial banks at present, and the presidency banks are established on a sound basis. Industrial banks will take some time before they are able to finance every industry; whereas if the presidency banks were allowed to do this sort of business, they could do so at once.

*Q.* They are not only for financing industries; they are financing whole crops.—*A.* They can do this business as well. My argument is, why should this particular business be excluded from their duties.

*Q.* But do you think that these banks can do this sort of business; why not industrial banks started by Government on the same principle, with expert advice?—*A.* That is a question of the future.

*Q.* We are discussing the future.—*A.* But these banks can do the business immediately.

*Q.* But this will take some time?—*A.* Only a very little time to get the charter changed.

*Q.* The work of the Commission is to suggest what ought to be done in the future for the development of industries, and don't you think that industrial banks will be better able to take up these functions?—*A.* I have no experience of industrial banks yet, and cannot give you any definite opinion.

*Q.* But you talk about German banks. Do you know anything about Japanese banks?—*A.* No.

*Q.* But do you think it would be proper for Government to start industrial banks?—*A.* Without knowing anything about the model of Japanese banks, I cannot answer this question.

*Q.* The industrial banks would be as good as presidency banks, with expert advice at their disposal.—*A.* That would depend upon the Directorate. The Directors of the presidency banks have neglected these duties so far.

*Q.* Not neglected; they have not been given the power under the Act to do these things. Why do you say " neglected "? On what grounds do you say they have " neglected "?—*A.* I say neglected in a restricted sense. Looking to the needs of the present times, they should have got the charter changed long ago.

*Q.* You cannot suggest anything about industrial banks?—*A.* They might do good in the future.

*Q.* Have you any scheme for starting industrial banks?—*A.* No.

**Q. In your suggestions for the starting of different factories in different centres do you want to be supplied with oil seed at Navsari?—A. No, I only say how cotton oil mills can be attached to existing ginning factories.**

**Q. Can you tell us which cotton seed is better for the oil, the Gujarati or the Berar?—A. I find from our experience that the Berar seed is the best as regards the percentage of oil.**

Q. And you would like a central mill that can be fed by the different gins?—*A*. Not a central mill but a central refinery, because the refinery is a costly item of the oil mill industry. It requires the engagement of an expert on a big salary. Small oil mills cannot afford to engage these experts.

Q. But is it not possible to start a separate concern, a central refinery buying the cotton seed at different centres.—*A*. You can start a separate refinery as a separate business by itself; but, in the beginning, the case would be that the small oil mills would be governed by the refinery, as the refinery would be the only buyer of the crude oil and would dictate its own terms to the oil mills; so it would be much better that the oil mills should start a refinery on a co-operative basis.

Q. All the gins that start have small oil mills?—*A*. Those who desire may start.

Q. What is the cost of a small oil mill?—*A*. I have given it in my written evidence.

Q. Is that American machinery?—Is that better?—*A*. Yes, as regards cotton seed we prefer it.

Q. What does it cost?—*A*. About Rs. 25,000 to attach a small oil mill to the gin.

Q. The gins themselves don't cost more than fifty thousand?—*A*. They may cost anything; but I have given accurate figures.

Q. The gins are specially started to bring in cotton?—*A*. It may become an industry by itself; my suggestion is that after the ginning season is over, the oil mill should work with the power lying idle.

Q. But a man who is thinking of going into cotton must go into the oil trade too? It is a subsidiary industry.—*A*. He loses nothing in becoming a merchant in oil.

Q. But he may hesitate?—*A*. It is not a degrading business.

Q. I don't say degrading, but take the case of the Marwari. He understands and owns cotton factories; his general business is to bring down cotton and gamble on it. He does not think of making money on the factory; it matters very little to him, and so he would not think of an oil mill?—*A*. He may be left alone.

Q. Therefore I want to know if an independent oil mill without ginning is started, would it pay?—*A*. It would pay. The idea here is how to induce ginning people to utilize the power that remains idle for the greater part of the year. I do not say that an independent oil mill cannot be established and with success.

Q. How much money is your factory making?—*A*. Since the outbreak of the war we are making nothing; on the contrary we are losing. Before we were exporting our cake to England and Germany. After the outbreak of the war we could only export as long as our contract lasted; since then we have not been able to make shipments of cake to foreign countries and our stock is piled up in our godowns. In foreign countries they use cake for feeding cattle; here there are so many competing oil-cakes, and people generally have a prejudice in favour of *ghani*-made cake. Moreover, India being an agricultural country, there is no scarcity of concentrated foods, whereas in Europe they are always in need of concentrated foods, and they pay the best price for oil-cakes on the basis of analyses.

Q. You were generally exporting to the continent?—*A*. We were mainly exporting to England, and partly to the continent.

Q. Before the war were you making any money?—*A*. Yes, for three years.

Q. On what capital?—*A*. At that time our capital was two lakhs and fifty thousand. On that we made an average profit of forty thousand rupees nett per annum.

Q. Did you have any expert working under you?—*A*. Yes, he is coming to give evidence before you.

Q. In the 31st paragraph you say, "I shall not be far from the mark if I add that in India, particularly in Bombay, the banks encourage speculation." In what way?—*A*. In advancing money on inflated scrip.

Q. At what price; what margin?—*A*. I do not know what margin, but I know that as a matter of fact the majority of banks in Bombay advance money on scrip, for which speculation is running high.

Q. And you think that is wrong?—*A*. For the banks it may be right; they may be advancing on sufficient security, with a very big margin; but I don't see how it encourages any trade, commerce or industry.

*Q.* You want that all the banks should only encourage commerce and industry?—*A.* That is what they are in existence for.

*Q.* Are they?—*A.* What else should they do?

*Q.* They are there for the sake of making money, just as you are in cotton; they are not run on a philanthropic basis.—*A.* No, I do not say that.

*Q.* About railway freights, you have put your case very clearly. In regard to the hire-purchase system, you are not in favour of Government supplying machinery on the hire-purchase system?—*A.* No.

*Q.* Why not?—*A.* I have already answered this question to Sir Dorabji.

*Q.* About your railway complaints, what do you suggest to remedy this evil?—*A.* I have given my suggestions there in paragraph 58.

*Q.* Do you think they can be remedied by having management of railways by the State?—*A.* I cannot definitely answer this question.

*Mr. C. E. Low.*—*Q.* In paragraph 2 you say that two of the previous cotton seed mills were only able to gather together a few thousands. Do you know about the case of the Akola cotton seed oil mills?—*A.* Yes, I know about them.

*Q.* They gathered together a good deal more capital than that?—*A.* Their capital is large, but they are not exclusively crushing cotton seed. It is the Berar Oil Works now.

*Q.* It was a failure to some extent?—*A.* I understand it was due to financial difficulties.

*Q.* But they had a capital of about five lakhs, didn't they?—*A.* Well, they had it. I do not desire to answer questions further.

*Q.* To what extent did your own concern suffer from insufficient capital?—*A.* Well, we have been expanding our factory, as we got capital in instalments, so I do not think we have suffered in any way as regards putting up the factory. It was only in the working funds that we had some difficulty, and that is also a private story and I should not like to tell it here.

*Q.* What could you have done that you have not done, if you had had more funds available?—*A.* We had sufficient funds as long as we were working the mill successfully at a profit. The difficulties came afterwards, after the war. Of course I cannot reveal all the facts without giving out some secrets.

*Q.* I think you have said sufficient for our purpose; if you had had more capital available, you could have employed your working capital on a cheaper basis?—*A.* Where did I say that?

*Q.* That is what I gather from your remarks?—*A.* No; more capital would have involved me in speculation in buying unlimited supplies of seed. I do not think I suffered from want of capital.

*Q.* In paragraph 14 you express yourself against Government supplying machinery on any system; would you apply that to cottage industries also, such as the hand-loom?—*A.* I say "generally", and I apply it to all cases.

*Q.* Even in the case of cottage industries? Don't you think it is a good thing to let a man have a hand-loom on the hire purchase?—*A.* If a poor man requires a small loom he can easily get it from the machinery dealers themselves on the hire-purchase system. Singer's sewing machines are available in the bazaar on such a system.

*Q.* That is a highly organized system.—*A.* We want highly organized systems for machinery and everything; but we do not wish Government to take up all this sort of business.

*Q.* When Singer's started here, they had a very wealthy Corporation behind them, outside the country. The present hand-loom manufacturers are not well-to-do people. How do you propose to get over that difficulty?—*A.* The difficulty would continue even if Government interfered.

*Q.* Why? They would get a bigger demand for their looms?—*A.* You would make Government merchants instead of a Government.

*Q.* What is the harm in that?—*A.* They should not become merchants.

*Q.* Why not? They are already on a very large scale.—*A.* In regard to those industries which the public cannot undertake, such as railways, the Government may become merchants; but as regards small industries, I do not see why they should become merchants, and hamper private enterprise.

*Q.* Then the man is to stay without his hand-loom because of a certain principle of political economy?—*A.* As regards hand-looms, I am rather of opinion that the industry is doomed. The bigger cotton mills would soon supply the cheaper class of cotton goods, and the hand-loom weavers will have no chance at all.

*Q*. Then why has the yarn consumption of the industry been increasing for the past 20 years?—*A*. It may increase, but it will have no chance.

*Q*. Perhaps there were not sufficient cotton mills. I think that is a case of theory which does not seem to fit in with the facts.—*A*. I am sure of the industry deteriorating, and do not think it will have any chance in the future.

*Q*. And on account of that theory, we should abstain from assisting them?—*A*. I do not say on account of that theory. I say on general principles that Government should not sell machinery. I do not say anything about assisting the hand-loom weavers.

*Q*. If you think that they are going to be failures, that applies to every form of assistance.—*A*. As regards the hire-purchase system, I am opposed to the principle. The question of hand-loom weaving has nothing to do with it.

*Q*. Do you think it a desirable thing for Government to appoint Directors? Do you think that would not involve undue interference in the affairs of the company?—*A*. Not if the Directors work along with the other Directors harmoniously. I do not fear there would be any disagreement.

*Q*. But will the Directors be in a position to commit Government; or will they have to refer to Government for instructions from time to time?—*A*. The Directors must be authorized to deal with important questions as they arise and Government must abide by their actions.

*Q*. Supposing the company come to grief, and the Directors are sued by the shareholders, what is the position of the Government then?—*A*. Just the same as that of other Directors.

*Q*. Do you think then that Government would like to appoint Directors?—*A*. That is for the Government to decide.

*Q*. There was a point which Mr. Thomas asked you about, which I don't think is quite cleared up. I refer to paragraph 28. You are against the idea of demonstration factories. Are you opposed to the idea of experimental Government factories. Demonstration is to exhibit an approved process; an experimental factory is to find out that process. Are you opposed to the idea of a Government experimental factory?—*A*. The experimental factory would only serve one purpose, and that is they would show the public that certain products are possible to manufacture.

*Q*. An experimental factory would not show anything; it would discover whether anything could be done commercially.—*A*. As regards production, it would be all right; but as regards commercial success, I do not think Government could convince people by establishing such factories.

*Q*. But would not people be able to see practically the possibilities of the process on a fairly large scale?—*A*. I have said that there have been several such factories and yet they have not produced any such results as you say.

*Q*. For instance, which ones?—*A*. The Cawnpore Oil Mill, now known as the Premier Oil Mills.

*Q*. The Cawnpore Mill was not run by Government, but by Begg Sutherland and Co.—*A*. Government gave it to them for management.

*Q*. Government did not manage it; it was managed by Begg Sutherland and Co —*A*. I am not in the secrets of that company.

*Q*. The matter is public property.—*A*. There may be certain facts not given to the public; but the factory was not a commercial success. There were these two factories, that one and the Sugar Factory at Gandevi owned by the Gaekwar State.

*Q*. What about the Madras Aluminium Factory?—*A*. I know nothing about it.

*Q*. What was your idea in starting a cotton seed oil mill in Navsari, when you bring your cotton seed apparently from a considerable distance and export your oil-cake?—*A*. Navsari itself is a cotton-growing centre, and when we started the mills there, we took into consideration several other facts; for instance, Kathiawar is near by. Navsari is a small port and we expected that Kathiawar might be in favour of cakes and might buy our products. We thought we were near the market for these products. Then there is the question of oil. Now we are able to sell most of our oil in Broach, Ahmedabad and Bombay. In that respect we were also near the market. Later we found that local cotton seed was not quite suitable for our purposes; and that other seed was better and we preferred it and imported it, and even then paid for that seed just the same price at which we could have bought local seed.

*Q*. You say in paragraph 54 that if the railway would let you have this favourable rate, it would have enabled you to pay a dividend of 7 per cent. Do you know what dividend the railway are paying?—*A*. I do not know, but I know some of them pay from 5 to 7 per cent.

*Q*. Then is there any particular reason why you should pay a larger dividend than the railway?—*A*. I do not say I want to pay 7 per cent. I simply give you the figures which would enable me to pay such a dividend.

*Q*. With reference to paragraph 58, and No. (i) of your suggestions, have you considered how that would work out in the case of a very large established industry like that of cotton mills at Ahmedabad? This is the first definite suggestion we have had put before us on this subject. Have you considered how that would affect the big cotton mills? I leave out Bombay, because they get favourable rates apparently. Take the Ahmedabad baled cotton coming to Ahmedabad from, say, Navsari. They would get their cotton cheaper than the Bombay Cotton Mills?—*A*. If Navsari cotton has got to be sent to Bombay and to Ahmedabad. I find that for the same distance the rate for Ahmedabad is higher than that for Bombay.

*Q*. Apart from the question of principle, the railway would be giving away a larger sum in the case of the Ahmedabad Cotton Mills, which are presumably prosperous?—*A*. There may have been other reasons for the prosperity; certainly not the saving on railway rates.

*Q*. You would not limit this to small or nascent industries; you would want it for all industries alike?—*A*. I would limit it to industries that are in the making; the weaving industry is so advanced that it can bear these inequalities; but new industries cannot.

*Q*. This suggestion would result in rather preventing industries from aggregating together at the ports, wouldn't it?—*A*. Yes.

*Q*. And you think that would be a good thing to do to diminish the congestion at a port like Bombay?—*A*. Yes.

*Q*. You say in No. (v) of the same paragraph, "Siding facilities should be given where the inward and outward traffic amounts to at least two to three wagons daily." That is to say, you think the railway should find sidings free?—*A*. Yes, if possible.

*Q*. Apparently they don't take up sidings here on account of the valuable land?—*A*. As regards Bombay I cannot say anything; but in Ahmedabad and other places the Railway Companies have given sidings.

*Q*. Have they given them free? Who pays for the land?—*A*. That is a question I should leave to the railways themselves to answer.

*Q*. Is that not the whole point?—*A*. We applied to the Railway Company for a siding, and they said that on account of certain technical difficulties they could not give us the siding. We persisted, and offered to pay for the complete cost of the siding. The management told us they could not accept any money from the public for a siding. They then decided that they would give us the siding; that on the cost they would charge us 5 per cent. interest, and the upkeep of the siding. We agreed. Meanwhile the war broke out and they cancelled the arrangement.

*Q*. I suppose they had no rails; that is another matter.—*A*. At the time they had plenty of materials, and could have given it. We have been asking for a siding since 1912; it was before the war broke out. They were then prepared to give us the siding. They wanted a deposit which was paid and subsequently returned to us.

*Q*. What was the point in dispute before the war?—*A*. Before the war there was no point in dispute, only this that our factory is situated on the wrong side of the line, and they said they could not give us a siding crossing the line. Subsequently they were going to form another siding on the side on which we were, and they agreed to extend that siding to our factory. The project was given up later on. They next agreed to give us a siding on the other side, just opposite our factory, so we had to cross the line in taking our goods.

*Q*. What change do you want made in the present practice regarding sidings?—*A*. There is no change that I desire; only this much that they should consider such applications for sidings favourably and without unnecessary delay.

*Q*. To save delay? Quite so. But you say "given." The present arrangement in most cases is that the man who wants a siding pays for everything up to the top of the ballast?—*A*. In regard to our case we were given to understand differently. We offered them full payment of the whole cost, about forty thousand rupees, but they would not accept it. They said they would only charge interest at 5 per cent. on the investment, and the cost of the upkeep. We agreed to pay it.

*Q*. You don't object to that?—*A*. We agreed, but they cancelled the arrangement.

*Q*. Referring to paragraph 61 (v) (*b*), why do you consider that technical education should be under the Director of Industries rather than the Educational Department?—*A*. The Director of Industries is fully concerned with such education, and I should rather like that it should be under him.

*Q.* The Director of Industries is not an expert in the technique of education. I am giving the argument of the other side. They say he won't know how to arrange his curriculum.—*A.* On the other side the Director of Public Instruction is not likely to know all the requirements of technical schools and colleges.

*Q.* He won't know the kind of man that they want to produce, you think?—*A.* I suppose even now they do not know what kind of men they produce.

*Q.* Under your Land Revenue Act, is there some penalty for using land for factory buildings?—*A.* Yes, there is.

*Q.* In British India?—*A.* Yes.

*Q.* Can you refer me to it?—*A.** We are paying a penalty ourselves.

*Sir F. H. Stewart.*—*Q.* Were you paying a dividend before the war?—*A.* Yes.

*Q.* Do you mind telling me what it was?—*A.* 7 per cent.

*Q.* And since the outbreak of the war have you been paying one at all?—*A.* None after the war.

*Q.* Then your business was chiefly the export of oil-cake?—*A.* Not chiefly, but the export of oil-cake was part of our business.

*Q.* The paying part of it?—*A.* Decidedly, because in our case the cake is not a by-product, as supposed by some; the oil and cake are equal. Before the business pays it is necessary that the cake should be disposed of profitably. In the case of the other oil seeds, the crushing enters in the price of the oil, the price of the seed, the cost of working, and a little profit; also the cake remains as a further profit. In our case it is not so.

*Q.* Do you make your own export arrangements, or do you sell to other exporters?—*A.* We export ourselves.

*Q.* You enter into contracts with buyers in England and abroad?—*A.* We have a London firm who are acting as agents; and before the war we had a firm in Germany who were buying from us.

*Q.* Do you export oil at all, too?—*A.* In the beginning of our career we exported a small quantity of crude oil only. We had big stocks, but we have not been able to export since, because steamer companies would not quote us favourable freights.

*Q.* How did you pack the oil?—*A.* Our first and only consignment was packed in barrels, and it reached there all right.

*Q.* There was no leakage?—*A.* There was, but in the oil business we allow a margin of 2 to 3 per cent., and the leakage did not exceed this margin.

*Q.* That was from your point of view, but did the agents of the steamers find damage to their other cargo?—*A.* I do not know. Steamers between America and England are carrying large quantities of oil, so if the steamship companies there can carry that cargo, I do not see why the steamers running between England and India should object.

*Q.* Your idea of the hydrogenization process is to harden the oil and make it into a sort of fat. Would that help to solve your difficulty in getting freight for the oil?—*A.* No. The difficulty would still remain. We can, however, sell the hydrogenated fat here. Even now we can dispose of all the oil that we can produce.

*Q.* It is your oil-cake that you find difficulty in selling locally. You say people prefer the *ghani*-made cake. Is that because it is the custom, or because there is some oil still left in it?—*A.* Some oil, sufficient for a feeding stuff, is left in the hydraulic mill cake also. The farmers, however, believe that the percentage of oil is all in all in the cake, and prefer the *ghani* product because it contains a larger percentage of oil.

*Q.* You make reference to the Bombay Stock Exchange; have you any definite suggestions to put forward?—*A.* My suggestions can be inferred from what I have written there. I say in India there should be some houses who are interested in the promotion of companies, and who would underwrite the shares of new companies as they do in America and on the continent, and also in England.

*Q.* Would not an industrial bank do that, or an industrial corporation?—*A.* It may do it; it depends on the Articles of Association of the bank itself.

*Q.* In paragraph 7 you say that the Marwari does not contribute any capital to joint stock enterprises—*A.* So far as I know: hitherto, the Marwari has not been known as an industrialist.

*Q.* He deals a good deal in stocks and shares?—*A.* Now he does, but some time before he did not believe in stocks and shares. He chiefly confined his operations to opium, linseed and other trades. After the suppression of the opium trade he has taken to cotton mill investments and various kinds of speculations on the stock exchange.

---

*Note.—I subsequently referred this matter to my Manager and he informs me that we are paying an "enhanced assessment" which is considerably higher than the ordinary assessment paid when the land was under agricultural uses. This is, of course, different from "penalty."

*Q*. In paragraph 10 you suggest that if Government were to express its willingness to put some money into a company, that would bring forward applications from the public and relieve Government of their promise.—*A*. You see if such a promise was made prominently in the prospectus that if capital is not sufficiently forthcoming, and Government is agreeable to take up so many shares, people would go in for it as a safe concern.

*Q*. Carry it a little further. Suppose Government said it was willing to put money into a certain concern, and the public came forward with more money, and for some reason or other the concern went wrong, would not people be very angry with Government?—*A*. That would be human nature, but as investors they have to take chances.

*Q*. You would risk that?—*A*. Certainly.

*Q*. If Government did put any money in, I suppose you would provide for its being refunded at a definite time?—*A*. If Government put any money as ordinary shareholders——

*Q*. Then they would just rank as ordinary shareholders?—*A*. Yes, and can dispose of their shares as usual, but if they advanced any money, it would be on the lines I have suggested; that is, it should be in the form of loans repayable at a certain period.

*Q*. With or without interest?—*A*. That is a minor question.

*Q*. Would you give Government a share in any profit that was made during the time?—*A*. That I would leave to Government to stipulate at the time they make such loans. There are bankers in Bombay who also advance money to industrial concerns on the condition that they will have a certain share of the profits. If the concern agrees to that, they borrow from them. If Government wants to play the rôle of Marwari, they can do it.

*Q*. In regard to paragraph 23, demonstration factories, don't you think that demonstration factories may help the small man very much?—*A*. I do not think so.

*Q*. He could come and see how things are done properly?—*A*. He can as well go to a technical school and learn these things there. You are speaking of small men, and the ability of small men is confined to small things. These small things are easily shown in technical schools.

*Q*. Do you believe in technical schools?—*A*. I do.

*Q*. In the next paragraph you talk about the shroff. You rather believe in the shroff?—*A*. I do believe in the shroff.

*Q*. You say that he is often more accommodating and less exacting. Less exacting than whom?—*A*. Than the banks.

*Q*. Are his charges less?—*A*. Decidedly. Perhaps you are referring to the sowcar. The sowcar is quite a different being from the shroff. The sowcar's business is to get as much as possible from his client; the shroff is generally satisfied with his own investments and with smaller profits.

*Q*. At what rate of interest can the small man get money from the shroff?—*A*. That would depend upon the borrower's credit, but generally not at more than 6 per cent. In addition the shroff charges a small percentage on the total business, but that does not come to much.

*Q*. He requires security of course?—*A*. That would depend upon the personal relations between the borrower and the shroff. Many a time he advances without security.

*Q*. With reference to paragraph 26, Exchange Banks, their main function, as you point out, is to finance the export and import trade; but they also do put money out to help industries?—*A*. So far as I know, the Exchange Banks in Bombay have put money only in cotton. I do not know if they have financed any other trade but export and import.

*Q*. Have you any knowledge of the Presidency Banks Act?—*A*. No.

*Q*. Are there any special changes that you would like to see made in the Presidency Banks Act?—*A*. I have already answered this question to Sir Fazulbhoy.

*Q*. I don't think you did. Is there any specific change you wish to see made?—*A*. Only that for the sake of helping industries, the presidency banks should not be too exacting as regards the *nature* of security, and should advance money to industrial concerns on buildings, machinery, etc.

*Q*. That is not what I call a specific change in the Act which you are recommending.—*A*. Supposing a small company was started with a capital of two lakhs, and the bank advanced the money for the working of that company——

*Q.* And if the industry failed?—*A.* The loss would only represent a minor percentage of the bank's profits.

*Q.* In paragraph 42 you suggest that warehouses might be opened in important centres. By whom? Who would start and manage these warehouses?—*A.* It is not possible for a small dealer to obtain money on the security of his goods. Supposing there were small financing houses, they may have warehouses where they may keep these goods. This practice obtains in certain European countries where the goods are warehoused, and on the certificate of these warehouses money can be obtained from any bank. If there were such warehouses under responsible persons, it would be possible for small people to obtain loans.

*Q.* Do you mean that Government should start these warehouses?—*A.* So far as I know in European countries it is a private enterprise, and should be done privately here too. My object in putting in this paragraph is that people should be educated to start these systems. I do not say that Government should do it.

*Q.* You want to spread the use of credit?—*A.* Yes.

*Q.* Supposing a system of certificates of quality was introduced, would you avail yourself of it for your products? Would it help you at all?—*A.* Generally our products are purchased by English or German firms on the basis of analyses. These analyses were usually made by the chemists there in England or in Germany. Certificates of local chemists won't help, because the buyers there insist on a certificate from a chemist who is attached to their association.

*Q.* That was part of your terms of sale. Did you have much trouble over that?—*A.* None at all. The business is conducted on samples. If the goods are equal to the samples, there is no trouble. If you were to possess a certificate, that would be useful in cases where goods are bought without samples; but I do not know of any business conducted without samples.

*Q.* You don't think these certificates would be of much use?—*A.* No; if I were to go and buy certain things in the bazaar, I would look to the quality and not to the certificates. As regards branded goods, certain trade mark goods go by certain brand names. These brands are created by manufacturers by steady advertising. People do not look to any certificates in that case. I do not think that a Government certificate could help any business in any way.

*Q.* You say you have never had any trouble for freight for your oil-cakes in ordinary times?—*A.* No.

*Q.* Is cotton seed cake inflammable?—*A.* Not the decorticated cake. I do not know of any instance of decorticated cake being subject to inflammation. Undecorticated cake is said to get heated during storage and transit. In the case of our cake, it was always insured for all faults. The Insurance Company paid the damages if the cake had any deterioration due to spontaneous heating.

---

## WITNESS NO. 322.

**MR. A. F. YUILL**, *Works Manager, the Indian Cotton Oil Company, Limited, Narsari.* Mr. A. F. Yuill.

### WRITTEN EVIDENCE.

Difficulties of the oil industry. I am greatly obliged for the invitation to give evidence before the Industrial Commission on questions relating to the oil industry, but as there are no questions directly bearing on this subject, I take it that my evidence is required in answer to question No. 110, *viz.*, What suggestions have you to make for the development of any industry in which you have been actively concerned or interested?

In answer to this question I may mention that the oil industry in India suffers from difficulties which may be classed as—

(1) Financial difficulties.

(2) Technical difficulties.

(3) Commercial difficulties.

With regard to the first, I may say that this is hardly in my line, and that Mr. Sutaria, one of the Managing Agents of the Indian Cotton Oil Company, Limited, will be better able to give first-hand information on this subject, but to me the principal requirements in this line as regards new concerns appear to be :—

(*a*) Guaranteed dividends or permission to pay dividends out of capital for a period of three years.

(*b*) Freedom from income tax and increased land tax assessment for a similar period.

And as regards both new and established concerns—

Government assistance.

(*c*) Government help by means of Government mortgage guarantee to enable established concerns to obtain loans at reasonable rates from the Presidency or other banks on the security of fixed assets.

(*d*) Government help by similar means to enable established concerns to purchase additional machinery or plant required to produce products of the highest class; to diversify production; or to reduce manufacturing costs.

Provincial Departments of Industries.

Of course none of the aforementioned methods of Government assistance could be brought into operation without the establishment of Departments of Industries for each province, such departments to be assisted by properly qualified experts in those different industries which the Department decide to assist, and such assistance should only be given provided that the expert is himself satisfied that the project has a reasonable chance of becoming a profitable concern within a reasonable period, and in the case of (*c*) and (*d*), when he is satisfied that the results of such assistance will not involve the Department in serious loss. Such assisted concerns should have a Government representative on the Board of Directors.

Government control

With regard to No. 2, *viz.*, technical difficulties, these may be subdivided as follows:—

(*e*) Lack of expert knowledge.
(*f*) Lack of facilities for commercial research.
(*g*) Lack of trained workers.
(*h*) Difficulty in obtaining suitable machinery.

Technical experts.

As regards (*e*) the appointment of a technically equipped expert with up-to-date practical experience of the oil industry is essential. He should be able to advise the Department regarding the possibilities of any project which might come before them, to organize research in connection with the industry, to advise interested parties regarding the selection of the most suitable machinery for the treatment of particular oil seeds, to design and supervise the erection of the necessary plant, and to initiate others into the working of the various processes.

The services of such experts should be available to concerns which have complied with the necessary Government conditions, on payment of a time fee which should not exceed 50 per cent. more than the salary of the expert in question. The results obtained by the expert while so engaged should be considered strictly private.

Technical institute

For the removal of (*f*) a properly equipped Technical Institute in each province is a *sine qua non*. Such institute should be under the Department of Industries; should be properly equipped with facilities for commercial research in those industries which the Department are desirous of assisting; should have a suitable technical library, and should be organized for research in those industries which the Department are desirous of assisting. When not engaged in outside work the different experts should carry on research experiments in the institute the results of which might be published for the use of manufacturers. The institute should also be organized for undertaking experimental and other work on behalf of industrialists on payment of reasonable fees. In addition it should be open to properly qualified manufacturers or their representatives on payment of suitable fees for carrying out experiments with regard to the diversification of products, production of higher grade products, reduction of manufacturing costs, etc. Such results should be considered to be private property.

The oil industry in India suffers from lack of specialization. Unless manufacturers confine their attention to one oil seed for a reasonable time there is little possibility of that permanent improvement either in regard to grade of product, or complete utilization of by-products which is essential to success in this industry. Hence I would suggest that specialization should be required of concerns desirous of securing Government assistance. Further I am so convinced that many valuable discoveries still await the enterprising investigator in this industry that I would suggest the institution of yearly prizes for the best and most promising discoveries in connection with the industry, and the relaxation of the patent laws to enable the discoverers to get the full benefit of their discoveries at the least possible expenditure.

Training of apprentices and workers.

As regards (*g*) assisted concerns should be encouraged to take promising students as premium apprentices, and intelligent workers who might be expected to benefit by the same might be assisted to attend such courses of technical study as in the opinion of the expert would enable them to become more useful to their employers and to the industry.

As regards (*h*), in addition to the advisory assistance given by the expert to intending purchasers, importers of machinery for use in this industry might be required by the Department to submit for sanction by the Department proofs of their price lists dealing with such machinery, and also proof of their ability to advise intending purchasers as to the suitability of such machinery for the required purposes.

With regard to No. 3, *viz.*, commercial difficulties, these include not only questions of commercial manufacture, but the much larger question of the disposal of the products of the industry.

Assuming that it is the desire of the Government so to assist the oil industries of India that it may be possible to crush in India all the seeds now exported to foreign countries, and so retain the profits of such manufacture in the country, it will be seen that this desirable state of affairs can only be brought about by :—

(*i*) the development of local markets so as to utilize all the products, or

(*j*) the profitable export of such of the products as are not required in India.

The former alternative is of course the most attractive, but in the case of the principal products, *viz.*, oil, the market though large is amply supplied by the existing crushing plant, and as the transference of business from bullock power to steam power concerns does not presuppose expansion of the industry, Government cannot be expected to assist in the process. Improvement in quality of the finer grades of oils will enable them to be used in place of *ghee* in certain preparations, and thus will relieve to some extent the demand for *ghee*, which at present appears to be far in excess of the supply with disastrous results to the consumers both as regards quality and price.

In addition, new outlets must be found for the increased oil product of an expanded industry. The outlets which first suggest themselves are the manufacture of soaps, paints, sizing materials, candles, and other imported articles and the encouragement of such industries would be of great advantage to the oil industry. The development of such industries is inhibited to some extent by the high cost of the necessary chemicals, and I am of opinion that Government manufacture and sale of essential chemicals like sulphuric and hydrochloric acids would at least enable the soap industry to extract the glycerine from waste soap lyes, and thus enable this industry to compete both in price and quality with foreign manufacturers.

The local disposal of the principal by-product of the oil industry, *viz.*, oil-cakes, is a still more serious problem. Without an export demand the market for cakes is quickly glutted, and crushers are unable to compete with the export houses for their supplies of raw material. The remedy for this state of affairs appears to be continued research on the part of Government to determine which field crop products used for cattle foods can be most economically replaced by edible oil-cakes, so that not only may the area of human food crops be extended, but also that the oil industry may benefit by the extended demand for edible oil-cakes and that these edible oil-cakes may be to some extent withdrawn from use as manures, leaving only the inedible oil-cakes for such purpose.

It has already been conclusively proved on Government farms that the oil-cakes of cotton seed and sesamum can most profitably replace *guar* in the ration of working bullocks, and yet municipalities and Government departments go on calling for tenders for the supply of high priced *guar* which has to be conveyed many hundreds of miles to feed their working animals, when they could save at least Rs. 3 per animal per month by using oil-cakes. Were these public bodies to set the example, the ordinary cultivators might soon be expected to follow suit, with considerable benefit to themselves and the oil industry.

**Transport difficulties.**

Failing sufficient development of the local markets, the only alternative is to export the surplus products. When crushing for export the Indian manufacturers suffer from certain disadvantages. The chief of these is the difficulty of transporting the products compared with the ease with which the raw material can be shipped. This applies more particularly with regard to oil. Shippers fight shy of oil consignments, and often not without reason. So far the industry has had to depend on imported packages in which to ship oil consignments, and these have proved anything but satisfactory, or if satisfactory far too costly owing to the fact that importers will not pay for such packages, and their return empty is a serious expense. Provided there is sufficient demand for the products, a possible remedy for this state of affairs may lie in the establishment of oil hardening plants, where, by the hydrogenization process, oils for export may be hardened to such a point that leakage may be eliminated. Such plants are expensive in first cost, and Government financial assistance might be necessary for their establishment. Experiment in the production of a cheap and reliable oil container is necessary.

As regards oil-cakes the transport difficulty does not loom so large, but still, compared with the European manufacturer, the Indian manufacturer is, in the case of the edible oil-cakes, handicapped by the fact that owing to the premium obtainable by the European manufacturer for his freshly manufactured cakes, he can pay a higher price for his raw material, so that the advantage of cheap labour in India is discounted by the more serious deterioration as regards palatability of the oil-cakes over that of the raw material. The remedy is not obvious, but the matter is worthy of the attention of Departments of Industries. Government can also help the Indian oil industry by debarring Railways from charging a higher rate for similar commodities in similar sized consignments for a shorter

Railway freight.

journey over the same portions of the line than for a longer haul. For examples if the Bombay, Baroda and Central India Railway decide that they can profitably carry cotton seed from Broach to Bombay (*a distance of 205 miles*) *for Re. 0-1-9 per maund*, they should be debarred from charging a higher rate, *viz.*, *Re. 0-2-3 per maund*, for similar consignments from Broach to Navsari, *i.e.*, a distance *of 58 miles*.

Similarly full wagon load consignments of the products of the oil industry—particularly oil-cakes—should not be charged at a higher rate than that charged for the conveyance of the more expensive and unwieldy raw material between the same stations.

The removal of these preferences to external trade would to a certain extent assist Indian industries and enable them to compete on more equal terms with European manufacturers.

Exhibitions.

Industrial exhibitions, including not only comparative exhibits of foreign and Indian manufactures but also samples of all goods purchased by Government Departments, would do much to assist the oil crushing industry if only it impressed on manufacturers the necessity for improvement in packing goods for sale and in maintaining a high standard of quality in the goods they offer.

The difficulties which beset the cotton seed oil industry in India differ only in detail from those which beset oil milling in general, and it may reasonably be expected to share in the benefits of Government actions directed towards the improvement of oil industries in general. The most marked difference between these industries and cotton seed crushing lies in the fact that the raw material of the cotton seed oil industry is already a well established competitor of the chief by-product of the industry, and that the market price of cotton seed is more seriously affected by adverse crop prospects than is the case with the raw material of the other oil industries. Such variation in price of the raw material has little or no relation to the market rates of the products, and in consequence the business of manufacture may often on account of threatened or actual famine in certain districts become more or less unprofitable. This is a state of things which is not conducive to stability, and rather savours of speculation. Of course no one would suggest that Government assistance should be invoked by the crushers, to assist them in bearing the cotton seed market and lowering the value of the crop. Rather the attention of cotton seed crushers should be drawn to the necessity of increasing in every possible way the value of the products of the industry to put them in a position to pay the market rate of the seed at any time. Further, Government should initiate careful experiments in each province to ascertain the actual and comparative food values of cotton seed and cotton seed cakes for feeding to milking animals when kept under both local and western conditions and published widely the information thus obtained, to enable cultivators to decide as to the relative economy of using either. Such an experiment will probably be carried out by the Bombay Agricultural Department in the near future. Competition with foreign crushers is not so difficult, as in ordinary times there is always some relation between the European market rates for cotton seed and cotton seed cakes and this can be used as a guide.

As regards specific Government assistance to the cotton seed industry, I think that for some years it ought to take the form of assistance to established concerns and the encouragement of prospective concerns to combine with established concerns like the Indian Cotton Oil Company, particularly as regards marketing the products of the industry, rather than that they should encourage the multiplication of small competing businesses. Cotton seed industries cannot for many years affect seriously the raw material market, and in marketing their products they come into competition with so many closely allied articles that there is no danger of combinations forcing up the price of the articles they sell beyond the actual value thereof. Combination would further tend to division of labour, economy of production, improved standards of quality, market steadiness and financial stability.

## ORAL EVIDENCE, 22ND NOVEMBER 1917.

*Mr. A. Chatterton.*—*Q.* You say in your note, "The oil industry in India suffers from lack of specialization." Do you mean that the mills try to manufacture different kinds of oil from different sorts of seed, or that they do not specialize sufficiently in the products which can be got from one particular kind of seed?—*A.* My idea is that they try to work too many different oil seeds. The result is that they never go deeply into the products which can be obtained from these oil seeds. They are content with superficial results. Whereas if they were to specialize for a certain time in a particular oil seed, they would come to know each and every product which can be manufactured from it.

*Q.* Is it practicable as a commercial proposition to set up a large oil mill for crushing only one kind of seed?—*A.* I think it is. But my contention is that if the manufacturer is prepared to speculate in all the different oil seeds he should not require any Government assistance. If he wants Government assistance, he should be asked to specialize for a certain time in one particular seed so that an improvement may be made in the working of that particular oil seed.

*Q*. To work on one particular oil seed means the establishment of a very large godown and the locking up of a very large amount of capital?—*A*. Not necessarily. The seeds are usually available in the country—in most of the centres.

*Q*. That involves paying a higher price for seed than at harvest time—a price which increases in proportion to the time the crop is stored?—*A*. That may be, but the same may apply to the products.

*Q*. It would be better to buy the crop at the harvest time.—*A*. That applies to almost all oil seeds as they mostly all come on the market at about the same time.

*Q*. On this question of specialization, the Indian mills suffer largely from want of expert advisers. The general idea has been that if you have an engineer and the machinery, that is all that is necessary. Is it not essential that for an oil mill in India you should have competent chemical assistance? Would not the problem of the development of oil industry in India be much more a matter for chemists than engineers?—*A*. It is to a certain extent, but not entirely so, as in course of time the engineer would become something of an expert in that industry.

*Q*. But without considerable chemical knowledge is it practicable to take crude oil and extract all that you can possibly get from it?—*A*. No; but in the case of most of the oil seeds in India the process is simple. The oil does not go into a refinery at all before it is sent to the market. In that case a chemist is not absolutely necessary. It is only in the case of oil seeds such as cotton seed which require careful refining and preparation that the presence of a chemist would be essential all the time.

*President*.—*Q*. Mr. Sutaria* called attention to the fact that you should have oil-pressing distinct from oil-refining and your crude oil should be assembled at the central oil refinery, and it is there that you want to have a chemical expert and not in the oil-pressing factory which is almost merely a mechanical engineer's work.—*A*. It would be sufficient to have a good supervisor going round such concerns, but it is necessary to have a chemist at the central refinery.

*Q*. The central oil refinery would make it its business to teach people who are supplying crude oil?—*A*. Yes.

*Mr. A. Chatterton*.—*Q*. The proposition that has been put forward is the establishment of small oil mills, say, in connection with cotton gins to supply crude products to the central refinery. Have you experience of that system? Do you know whether it has been tried?—*A*. That is the system in America. Central refineries take the products of very large areas. The ordinary mills in America do not go to the trouble of refining at all. They have no chemists. They have machinists whom we call engineers here, and they are in charge of the crushing department only. They have little or no knowledge of chemistry.

*Q*. Under the American system is the oil sent in barrels from the small mills?—*A*. No, usually in tank cars. They have good tank car services there.

*Q*. Would that system be practicable here?—*A*. I do not think so. At present I do not think that we shall be able to get tank cars. Besides, it necessitates elaborate siding arrangements and this we do not have in India.

*Q*. Have you any idea of the scale on which an American refinery is worked?—*A*. One which I have intimate knowledge of was able to refine six tank cars a day, each tank car holding about 25 tons—about 150 tons a day. That is rather a small refinery. The system on which they work is that the crude oil is bought through ordinary market channels on the basis of quality and probable refining loss. In case the refiner finds that the stipulated refining loss is likely to be exceeded, he may claim a proportionate rebate from the seller.

*Q*. You say, "In addition to the advisory assistance given by the expert to intending purchasers, importers of machinery for use in this industry might be required by the Department to submit for sanction by the Department proofs of their price lists dealing with such machinery, and also proof of their ability to advise intending purchasers as to the suitability of such machinery for the required purposes." Is it a practicable suggestion? How would you deal with the sellers of machinery to ascertain whether they were competent to advise people?—*A*. A number of concerns in Bombay are importing machinery and I think I should be safe in saying that fifty per cent. do not understand the machines they import. So that I was only suggesting that they might be able, in publishing their price list, to say here is a proof that it has been submitted to the Department of Industries and they have considered that the machine is suitable for the purpose.

*Q*. Would it not be better for the individual who wants to purchase machinery to be able to go to the Department of Industries and get the advice of the expert?—*A*. This is in addition, so that there may be less necessity for the buyer to approach the Department direct.

---

* Witness No. 321.

*Q*. If the buyer goes to the Department and specifies exactly what he wants, he can get the advice of the Department as to whether he is proceeding on the right lines or not.—*A* Of course, that will be an additional safeguard. I suggested this merely to relieve the Department of certain routine work.

*Q*. It is one of the functions of the Department to do this sort of work. Then for the development of the market for oils in India, you mention somewhere that the development of the soap industry would provide for the utilization of a very large amount of oil.—*A*. I do not know that I mentioned it particularly, but merely as one of the ways in which the market may be developed. I do not expect that it will immediately be a very large market.

*Q*. In connection with the Navsari mill have you done anything in that way?—*A*. We are able to get rid of the whole of the production of oil for edible purposes. We have just erected a plant for the extraction of stearine from the oil.

*Q*. Is it a fact that cotton seed oil is more digestible when the stearine is removed?—*A*. Oil which contains less percentage of stearine is more digestible than one containing a greater percentage of stearine.

*Q*. Have you got any evidence to show that oil from which stearine has been removed is better appreciated by people eating or using cotton seed oil for culinary purposes?—*A*. I do not think so.

*Q*. You have not considered it at all from that point of view?—*A*. No. I do not think that the difference will be very great. As a matter of fact it is not stearine which is present in cotton seed oil at all, but chiefly palmitin.

*Q*. Have you got a market in India for stearine?—*A*. The principal market would be for the adulteration of *ghee*, but it is intended to be used in place of *ghee*.

*Q*. Is cotton seed oil suitable for making margarine?—*A*. Neither in Europe nor in America do the best grades of margarine contain any cotton seed oil. It is used in larger quantities in making the second grades, though in some countries the addition of ten per cent. of sesame oil is compulsory, and a larger percentage of oil cannot be used without impairing the consistency of the product.

*Q*. Do you think that cotton seed oil is likely to become popular on a large scale as a substitute for *ghee*?—*A*. I think deodorized oil which has now come on the market will in course of time become an excellent substitute.

*Q*. What is its colour?—*A*. It is a little higher in colour than the American oil, but it is made from the best oil.

*Q*. Have you tried any experiments in mixing oil with milk or washing it with milk to give the particular flavour of *ghee*?—*A*. I tried it, but was unsuccessful. I have also tried it with cheese but I could not succeed.

*Q*. Apart from the difficulty, which Mr. Sutaria has told us about, in disposing of the cake, do you think that there is likely to be any other obstacle to the expansion of the cotton seed oil industry in India. Will you be able to find a market for the oil when it is extracted on a large scale?—*A*. Yes. Provided the expansion is not too sudden.

*Q*. Is it profitable to sell your cake as manure?—*A*. Not at the present time.

*Q*. You have got more nitrogen in cotton seed cake than in castor cake?—*A*. Yes, but there is a popular prejudice in favour of castor cake, which probably has some foundation in the fact that it is not attacked by white ants. That is probably one reason why popular prejudice is in favour of castor cake.

*Sir F. H. Stewart.*—*Q*. What was your training before you came here?—*A*. I studied in the Heriot-Watt College, Edinburgh, worked in England and afterwards went to America to study the practical part of the industry there.

*Q*. How long have you been out here?—*A*. About six years.

*Q*. All the time in your present employment?—*A*. Yes.

*Q*. I would like to ask you one question about the hydrogenization process. Is that now in existence?—*A*. It is in existence, on a commercial scale. I am only putting it forward as a suggestion that the steamship companies may be inclined to look with greater favour on consignments of solid fats than they do on liquid ones. All oils may be made solid by the hydrogenization process.

*Q*. You think there is no danger of leakage on the voyage?—*A*. No.

*Mr. C. E. Low.*—*Q*. There is only one point that I wish to ask you about. Have you any knowledge of the lines on which the Agricultural Department is working to try and popularize your products for cattle food?—*A*. Their efforts have been rather disjointed and they say that they suffer from lack of sufficient assistance to carry out experiments. They have carried out two experiments in connection with the feeding of cattle, one of which was on work cattle on the Surat farm, the other on dairy animals at Poona.

*Q*. Have they done anything by way of demonstration to get people to buy them? Do you know if they have started anything of that sort?—*A*. Beyond reporting the results of the experiments they have done little to popularize them.

*Q*. When there are local meetings and shows they do not demonstrate the feeding of your cake for cattle, or they do not try to sell cake?—*A*. No.

*Q*. Or take people round the farms where cattle are being fed on crushed mill cake.—*A*. There is no particular effort in that direction.

*Q*. But the Government farms feed their cattle on crushed mill cake?—*A*. Most of them do.

*Q*. And any dairies?—*A*. The Government military dairies at Poona do.

*Q*. Are any co-operative dairies being run here?—*A*. A few of them are our customers.

*Q*. Are those being helped to purchase wagon loads of mill cake?—*A*. That is not generally done in the Bombay Presidency. On one or two occasions the Government demonstration farm at Alibag have purchased an extra small quantity and resold it to the co-operative dairy there.

*Q*. What sort of society is that?—*A*. It is a co-operative society.

*Q*. From your point of view and from the information in your own possession you would like them to exert themselves a little more in this matter?—*A*. As a matter of fact, I would like them to carry their experiments rather further. And then publish the result of these experiments.

*Q*. Do you think that publication is going to affect it very much at present?—*A*. Not to a very great extent.

*Q*. You do not think that demonstration by one or two district agricultural societies at local fairs and things of that sort would be of more use than experiments?—*A*. No. But there are some points in connection with the feeding of our oil-cake which want to be cleared up. It is a well-known fact that cotton seed cake is most popular in the coldest countries. For example the colder countries of Europe are large buyers of cotton seed cake, while the warmer countries are not. So I think that there may be some foundation for the reluctance of the cultivators in India to go in for cotton seed cake feeding on a large scale and that matter will require to be cleared up before Government can be expected to push it further.

*Q*. What about its use as a manure for sugarcane?—*A*. As a manure for sugarcane it appears to be slightly inferior to safflower which is usually a cheaper cake.

*Q*. Is there enough safflower?—*A*. I think so and its price is very reasonable.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q*. Do you think that if this refinery can be started on a large scale in the different centres where there is a lot of cotton seed, that would be a successful investment?—*A*. That, I am afraid, is for the future. It is not an immediate prospect.

*Q*. But even then other people buy this cotton seed to feed their cattle and they come in competition with you and they pay a higher price than you can?—*A*. That is one of the principal difficulties in Indian cotton seed. The other is that the quantity of oil in Indian cotton seed is much less than the quantity of oil in American cotton seed, and so we are more dependent on the cake than we would be if there were a larger percentage of oil.

*Q*. Your profit largely depends upon the cake?—*A*. Yes.

*Sir D. J. Tata.*—*Q*. You get more oil from the Berar seed than from the Gujarat seed?—*A*. Yes and the decortication of Gujarat seed is twice as difficult as the decortication of Berar seed.

*Q*. On the first page of your note you refer to the appointment of a technically equipped expert, with up-to-date practical experience of the oil industry. Do you mean an expert who knows about the various seeds from which oil is pressed? Is it possible to get an expert who knows about all the oil seeds?—*A*. Yes. The crushing of most oil seeds differs only in details. But he should know the machinery best adapted to the different oil seeds.

*Q*. Can one man have this information?—*A*. Yes.

*Q*. That does not include *copra*?—*A*. That may be somewhat of a special line.

*Q*. Do you think an expert like that, capable of designing and supervising the erection of plants, would be available? It would be very difficult to find such a man. Would it not? That is generally done by the man who makes the machinery?—*A*. I do not mean for the designing and manufacturing of the actual machines, but rather for their assemblage and the preparation of the refinery. We do not usually get refineries of the correct size. We get them of standard sizes which may or may not be suitable for industries here.

*Q*. You say, " The services of such experts should be available to concerns which have complied with the necessary Government conditions, on payment of a time fee which should not exceed 50 per cent. more than the salary of the expert in question." That is to say, you propose that Government should get the expert and pay him, and lend his services on a certain fee?—*A*. I suggest that they should lend his services on a certain fee in order that people may properly appreciate them.

*Q*. His services should not be lent free?—*A*. I think not.

*Q*. You say, " Which should not exceed 50 per cent. more than the salary of the expert in question." If the expert's salary is Rs. 100, it would not be more than Rs. 150 altogether. Is that the idea?—*A*. Something to that effect. Government should not be making a profit out of it, but it should be sufficient to prevent people from employing the expert unnecessarily.

*Q*. Then there is always the question about the results of the expert's advice. You say, " The results obtained by the expert while so engaged should be considered strictly private." Supposing another party or a rival firm hearing that you have employed this expert to make certain researches for you, and wants to know what they are. They then apply to Government for the services of the same expert for the same purpose. What would you say then?—*A*. I consider that those who had paid him the salary would be entitled to the benefit of the results. At any rate they should not publish the result.

*Q*. The other man wants to pay him too. Will Government send for another expert?—*A*. That is rather involved.

*Q*. You say in your note, " Assisted concerns should be encouraged to take promising students * * * * * for such courses of technical study * * * * *." Where can they set up these courses? Near the factories?—*A*. At a distance.

*Q*. Where will the man trained as an apprentice in your factory go to pursue his technical studies? To Bombay?—*A*. Yes, or wherever there is a suitable institute.

*Q*. That means that he must leave his work.—*A*. Yes.

*Q*. You do not propose that while he is working with you, side by side he should have a couple of hours' leave when he goes and studies?—*A*. Not at all.

*Q*. Mr. Chatterton asked you a question about the next paragraph. I do not quite understand what you mean by proofs of price lists.—*A*. There is a proof before printing.

*Q*. How does that help?—*A*. It would enable them to insert in the price list that it had been submitted to the Department of Industries and they had passed the machinery as a suitable one for the particular work it is intended to do.

*Q*. What sort of proof of ability of the machine makers?—*A*. That they understood the machines they were selling.

*Q*. Who would find out whether a particular man was able or not?—*A*. The expert.

*Q*. There is something that seems to be contradictory. Lower down you say, " The lower alternative, that is, the development of local markets, etc., is of course the most attractive, but in the case of the principal products, *viz*., oil, the market though large is amply supplied by the existing crushing plant." By which you mean that though the market for oils is large, the present crushing plants in India are quite enough to supply the market?—*A*. Yes, under ordinary circumstances.

*Q*. Then you say, " New outlets must be found for the increased oil product of an expanded industry."—*A*. If you intend to expand the industry you must first find an outlet for the oil.

*Q*. The present machinery is enough to supply the present market?—*A*. Yes.

*Q*. There is no room for expansion?—*A*. Not without further development of outlets such as I mentioned or of the export trade.

*Mr. G. A. Thomas*.—*Q*. When you talk about the existing crushing plants do you include the village *teli*?—*A*. Yes.

*Q*. What proportion of the oil consumed in India is expressed by the village *teli*?—*A*. Probably about four-fifths or a larger proportion.

*Q*. If the oil mills were multiplied to 200 that would mean an extinction of the village *teli*?—*A*. In the absence of an expanded market it would mean extinction.

*Q*. It could not expand infinitely, so that you contemplate the final extinction of village *teli*?—*A*. I should not like to.

*Q*. Do you think that mill made oil competes against *teli* made oil in the village?—*A*. No.

*Q*. Do you think that it will ever do so?—*A*. In certain cases I do not think it will.

*Q*. There will be no market for the mill made oil?—*A*. Not in the village.

*Q*. That is to say, the bulk of the market will always be supplied by the *teli*?—*A*. Under existing conditions.

*Q*. Unless you can export the oil there is a very distinct limit to the number of oil mills that can be profitably run in this country? The industry therefore mainly depends upon the export of oil?—*A*. I think so.

*Q*. Assuming that the whole of the oil-cake will ultimately be consumed in this country, but that the oil will mostly have to be exported, it follows that unless increased facilities can be given for export of oil, the oil industry cannot expand to a very great extent in India?—*A*. Yes, but the export of cake is also necessary

*Q*. But it is hoped that the whole of the cake will ultimately be consumed in India. There are enough cattle to consume it all. My point is that in your opinion the future of the industry does depend upon the export trade?—*A*. Yes, to a considerable extent.

*Mr. A. Chatterton.*—*Q*. Have you any experience of the chemical extraction of oil?—*A*. I have only studied it. I have not worked it on a large scale.

*Q*. Do you think it could be employed with advantage in India?—*A*. Yes. For one of the reasons is that by taking a larger percentage of oil you will leave the product better adapted for manurial purposes and you will be able to sell your meal in competition with the other manure cakes. You may even be able to sell it at a lower rate.

*Q*. Have you ever examined the oil-cakes which are available in the bazaar as to the percentage of oil left in them?—*A*. Yes.

*Q*. Did you find there was a considerable waste of oil in the country mills?—*A*. Yes, but not so much as is generally supposed.

*Q*. Do you think it would be worth while buying up-country made oil-cake in districts where there is a large quantity available and treating it chemically?—*A*. Yes, provided you are sure of a regular supply.

*Q*. In oil-pressing districts there should be a regular supply?—*A*. Provided the concerns have sufficient capital to prevent combinations cornering their raw material.

*Q*. Do you think there is enough oil left to make chemical treatment profitable?—*A*. Usually. I have found from 12 to 15 per cent. in *ghanni*-made cakes.

## WITNESS NO. 323.

### MR. SORABJI M. RUTNAGUR, *Patent Agent and Joint Editor of the "Indian Textile Journal," Bombay.*

Mr. S. M. Rutnagur.

### WRITTEN EVIDENCE.

### *Industrial and Trade Journals.*

I have found the *Indian Trade Journal* useful for securing correct and reliable information, and consider it handy not only for journalists but for merchants and others interested in the subjects it deals with. Trade journals

I think Government should assist trade journals connected with the textile, engineering and allied industries of the country. I do not, however, think it practicable or useful to disseminate information of this kind in the vernaculars, because capitalists and others who are not conversant with the English language cannot possibly understand or utilize literature of this class. They are slow to take up new ideas or new industries and when they do invest in an enterprise they do it not as a result of study but because their neighbours have done it or because they have received the assurance of some expert in whom they have confidence. My view is that the Government publications monographs, etc., on trade and industrial subjects have been taken advantage of in a practical way more by foreigners (especially Germans, Austrians and Japanese) than by the British or Indian merchants; very few native Indian capitalists have the inclination, education or enterprise to take advantage of the information supplied by Government publications.

Technical and trade information suitable for those actually engaged in existing industries and factories would be more useful than elaborate statistics and figures published in the hope of inducing native capital for the development of India's resources.

### *Trade Marks and Patents.*

There is no provision for the registration of trade marks in India; this is a serious drawback, particularly as dealers and importers are often inclined to be unscrupulous and complacently copy other people's marks or labels and evade punishment by pleading ignorance of prior use. Were Government to open a registration office for trade marks and publish a list periodically, merchants and importers would take advantage of the protection thus offered. The absence of this provision also affects the Indian patentee as his invention cannot be pro- Necessity for registration tected in England and foreign countries under the International Convention. Under the Indian Patents and Designs Act of 1911 an inventor who applies for a patent in India does not get simultaneous protection either in England or in foreign countries because the Indian Act does not cover the registration of trade marks ; neither is there any separate legislation for the purpose. The result is that Indian inventions can be more readily infringed or anticipated in England and foreign countries unless protected simultaneously, a procedure which necessarily takes time and extra expenditure. I would therefore suggest that Government should provide for the registration of trade marks in India which will enable England and other countries which have joined the International Convention to give priority to Indian inventors. This arrangement will not only give adequate protection to the trade against infringement of trade marks but will give simultaneous protection to Indian inventors in England and foreign countries.

In other respects the Patent Law in India is on the lines of the law in England and is being satisfactorily administered by the Controller.

### ORAL EVIDENCE, 22ND NOVEMBER 1917.

*Mr. C. E. Low.*—*Q.* What kind of information do you find in the Indian Trade Journal which is of use to you?—*A.* It is full of useful items and commercial and trade statistics.

*Q.* You mean that you find the statistical information of special use?—*A.* Yes, but the other information is also very useful—I mean the commercial and technical information.

*Q.* You find that it gives the information in a handy form?—*A.* Yes, it does.

*Q.* I suppose the statistical information would be of more use if it were a little more prompt and up-to-date?—*A.* Not exactly; I think it is not so noticeable.

*Q.* You say that technical and trade information suitable for those actually engaged in existing industries and factories would be more useful than elaborate statistics: you realise of course that such information if it is to be of any use should be compiled by a skilled technical staff ?—*A.* Exactly.

*Q.* And such staff is expensive?—*A.* It would be no doubt because they are so rare, but it is still worth while giving this information.

*Q.* Do you think that experts already exist in the country who can furnish information of that sort?—*A.* I doubt if there are many.

*Q.* In respect of your paper, you have produced technical articles on the cotton trade?—*A.* Yes, we have.

*Q.* They are obviously written by technical men?—*A.* Yes, including myself.

*Q.* You have gone into the question of registration of trade marks. Of course you know, don't you, that owners of trade marks frequently register them as miscellaneous documents under the registration Acts?—*A.* Yes; they are mere declarations. That is the only protection that they now have for priority of use.

*Q.* The Government of India on numerous occasions have consulted commercial bodies regarding the question of the registration of trade marks, and it has always been turned down: what was the reason?—*A.* Because the difficulty is that people using trade marks at present cannot always prove their ownership. There is a great difficulty in getting them to prove their title.

*Q.* Most of the marks are already registered in England and they get them transferred to India, is it not so?—*A.* Yes, many of them.

*Q.* You are of course aware that a mark which has been registered in England is often used in India by somebody else?—A. He cannot do it in India always: if there is a law introduced, how can he copy an English trade mark?

*Q.* But supposing he is already doing so?—*A.* Let him continue.

*Q.* That will stir up a lot of litigation?—*A.* It might for a time, but five or six years afterwards it will be useful. There will be trouble at the beginning, but five or six years hence it will be very useful.

*President.*—*Q.* If you registered an invention in India and you were under the International Convention, you would get protection for one year in other countries, wouldn't you?—*A.* Yes.

*Q.* If you register in England, and India is under the Convention, you get protection for one year in India?—*A.* Yes. There might be 2,000 patents registered in England for every one registered in India.

*Q.* So that there will be 2,000 English patentees in India for every Indian patentee: Would this be an advantage to the Indian patentee?—*A.* There can be no disadvantage. Indian patentees would benefit by simultaneous protection.

*Q.* But it would not be an advantage to India, would it, to allow this as a means of protecting the English patentee?—*A.* How would the English patentee be better off by this? As it is he can apply for a patent simultaneously in both countries and be in the same position. I may give you an instance of what the difficulty here is. Suppose a man invents a thing in India and applies for a patent in England : he cannot have the advantage of the Convention if he is not a subject of the King of England. Although he has equality in India, he cannot get the advantage of the Convention unless he is a subject of the King of England.

*Q.* Many competent engineers in India are able to take advantage of this : they can get simultaneous protection in all the different countries of the convention?—*A.* Well, such instances are comparatively rare. I may mention that out of about 700 applications registered in India in 1913 only about 175 were from Indian inventors; the rest being outsiders.

*Q.* Are foreign inventions registered here?—*A.* Not many; inventions from England form the largest number.

*Mr. A. Chatterton.*—*Q.* Do you know about patents in Native States?—*A.* There is no patent law in any Native State : only Mysore has got an Act.

*Q.* There is no patent law in Hyderabad?—*A.* No, I do not think so, and under the present Act a man can copy the invention of an Indian patentee and can use it in the Native States without any trouble. There is no protection for the inventor in the Native States because our Act says it applies only to British India. Mysore is the only State that has a patent law so far as I am aware.

*Q.* You state in the first paragraph of your note that Government publications have been taken advantage of in a practical way more by foreigners, especially Germans, Austrians and Japanese, than by the British or Indian merchants : have you in the course of your journalistic career come across any specific examples of such utilisation to the disadvantage of the people of India?—*A.* That is a very big question, and I cannot answer that. I could see this from the enquiries that we received from the German, Japanese and American consuls here and by the way they used to call at our office for information. They are very enterprising. I can say that German travellers who came out here before the war used to wade through the official records, and they got the influence of their consuls much more than any other nation.

*Q.* Akin to this question comes up the question of the publication of research work done in Government institutions or in Departments of Industries. Would you have this published broadcast or would you prefer that this should be issued confidentially?—*A.* Research work of what nature?

*Q.* Chemical research work for instance?—*A.* For industrial purposes?

*Q.* Yes.—*A.* That should be broadcast, because there won't be much rush for making use of that information.

*Q.* Then in regard to consular reports, you ask for a more elaborate system of collecting information regarding trade and commerce, that information is extremely useful to a few people and of very little value to anybody else, and it is also of great value of course to trade rivals in Germany or foreign countries : would it not be better to have some method of distributing this information confidentially rather than publish it broadcast? Would you take steps to prevent such reports going into the hands of foreigners?—*A.* It would be desirable to prevent, but I do not think you can.

*Sir F. H. Stewart.*—*Q.* You think that Government should assist trade journals connected with textile, engineering and allied industries of the country : what sort of assistance do you think should be given?—*A.* For instance, there is no special publication for the glass industry just as we have one on Agriculture; it would be very useful to help a man to start one on glass, and if he comes to Government and if they helped him for a time, that publication would thrive. Private enterprise might be helped by Government in such a special case.

*Q.* What sort of help?—*A.* Financial help; because the paper won't pay for two or three years and the publisher would despair and give it up, though it might be a useful publication.

*Q.* Do you think that Government should publish monographs also in the existing Trade Journal?—*A.* Yes, if they specially deal with current prices : it is better than having mere trade and statistical information as published by Government. The journal will then be more popular if it contains other information as well.

*Q.* You don't see much in publishing that information in the vernaculars?—*A.* No, I do not think so.

*Q.* That is with reference principally to commercial information : but what about publishing elementary text-books in the vernaculars for those mechanics who can read them?—*A*. Our native engineers or mechanics won't understand it; their sons as a rule won't take up the profession even if you train them; they would rather like to be typists or clerks after attending a school.

*Q*. Then you don't see any likelihood of a mechanic having an ambition to better himself in his own walk of life?—*A*. I am afraid not, because if you induce him to go to school, it is very rarely that he will follow his father's trade.

*Q*. You say that if Government were to open a registration office for trade marks and publish a list periodically, merchants and importers would take advantage of them: but supposing Government were to do this to-morrow, do you think that people would go there and register their trade marks?—*A*. Yes. Those who have got an established right to them may register.

*Q*. Supposing somebody came to register a trade mark, what steps should Government take to find out that that person was entitled to register that mark?—*A*. He comes and makes a declaration; he has to sign it just as an inventor, such as "I am the owner of this trade mark."

*Q*. Would Government then interfere on his behalf to maintain the right?—*A*. No: there is no guarantee; they would simply say that he registered on such and such a date, and if another man comes to register a similar mark, the Controller won't accept this second application.

*Q*. You know, as Mr. Low told you, that the balance of commercial opinion has been strongly against this?—*A*. This must have been given by people who ordinarily infringe trade marks. If the merchants are of that opinion, I am sorry for them, but there is no harm done in registering.

*Q*. Could you give us any specific instance of an Indian inventor suffering owing to the absence of registration and protection?—*A*. I can give you a recent instance. Two or three natives came to our office in connection with an invention for protecting ships against sub-marines, torpedoes, mines, etc. We had to send this application to England in the first instance. They happened to be natives, and natives do not come under the International Convention. These papers would have to reach London, then they will be protected, and simultaneously they would have to go to America, France and Italy; all this should take a long time. If there was simultaneous protection, in India, they would have benefitted, as their rights would be respected in other countries, so that there would be no fear of any infringement or delay.

*Mr. A. Chatterton.*—*Q*. If you don't get inventions made in India of sufficient importance to pave the way for India to come under the International Convention, what other means of getting protection in foreign countries has a man got who has a valuable invention? Would you secure that by taking out his patent in England instead of in India—*A* If he takes it out in England, he is not protected simultaneously in the other countries as he is not entitled to the Convention rights because he is a native of India; he cannot do it unless he is an Englishman or at any rate until he acquires domicile in England.

*President.*—*Q*. Do you also suggest that the people who object to registration of trade marks are people who probably want to take advantage of the absence of registration by infringing other marks?—*A*. Some of them.

*Q*. "In 1877 the Bombay Chamber of Commerce and the Millowners' Association suggested that legislation ought to be undertaken along the lines of the English Statutes of 1875 and 1876. The Government of India accepted the recommendation and prepared a Bill, but the Bill was eventually withdrawn as the Bombay Chamber of Commerce and the Millowners' Association after more mature consideration expressed the opinion that legislation was not necessary and might possibly prove inconvenient. This opinion was endorsed by the Bengal and Madras Chambers of Commerce and was accepted by the leading commercial associations in India. In arriving at this conclusion the Chambers of Commerce were actuated chiefly by the consideration that the existing law was in fact sufficiently comprehensive to afford adequate protection to the legitimate users of trade marks, and they were also of opinion that the enactment of an Indian law on the lines of the English Statute would involve certain positive disadvantages. It was pointed out that, under the Indian law, the owner of a recognised trade mark could obtain protection against its illicit use in India although the mark had not been registered, even if registration had been applied for in the United Kingdom had been refused. If, however, an Indian Act were passed similar to the law in force in the United Kingdom, the protection enjoyed by any unregistered marks would fail. The protection afforded by such an Act would only be sufficient for practical purposes either if it is provided that marks registered in England should be deemed to be registered in India also, or in the alternative if all marks which were already registered in England were to be registered over again in India. Both these courses seem to be impracticable."

You see from this extract that the reason why there is no law for registration of trade marks is not that protection was desirable, but that so long as the law is good enough as it stands, there is no necessity for separate legislation?—*A*. You can imagine the trouble a man is put to to prove his priority of use: he has to go to the High Court with all proper documents and get certificates, which is all very costly. Moreover, you will have now to work against the Japanese competition: you must have some protection, that is my view.

*Q*. Now you come to a practical point. This view of yours if put before the Bombay Chamber of Commerce might induce them to reconsider their opinion?—*A*. I would be glad to give evidence if they call upon me.

*Q*. Meantime there is no evidence before us to warrant our raising this question again in this form, do you accept that view?—*A*. Yes.

*Q*. Now in your written evidence you say that Government should assist trade journals, and then afterwards you say that these journals and Government publications have been of more advantage to foreigners than to the people of India. What is the cure: are we to go on giving these people greater opportunities, or is there some other cure that you can suggest?—*A*. I am afraid we must publish everything.

*Q*. Then how are you going to take advantage of these publications?—*A*. Suppose a man started a small factory by reading about an industry in a Government publication; if he is successful then others will start which is equal to publication.

*Q*. That is publicity: you don't suggest any practical way by which we could get our people to take more advantage of these publications?—*A*. There is no special way that I can think of because confidential circulars would be sent to foreign countries if a man wants to do it.

*Q*. Whose fault is it if people don't take better advantage of Government publications?—*A*. It is the fault of the people themselves.

*Q*. Do you know of any specific cure for that which you can suggest?—*A*. I cannot suggest any.

## WITNESS No. 324.

Mr. A. G. GRAY, *Acting Manager, The Bank of India, Limited, Bombay.*

Mr. A. G. Gray.

### WRITTEN EVIDENCE.

### *Financial Aid to Industrial Enterprises.*

Sources of capital.

During my connection with the Parr's Bank, Limited, the Alliance Bank of Simla, Limited, and for the last ten years with the Bank of India, Limited, the question of raising capital for new enterprises has come under my notice.

I am of opinion that fairly large concerns under the management of well-known firms and financiers do not find difficulty in obtaining capital.

Difficulties arise in the case of small concerns but these difficulties are in the natural order of things.

Dividends from existing industrial concerns form a very considerable and increasing proportion of the capital available for new enterprises.

I notice that many of my Bank's clients invest practically the whole of their income from their existing investments in new companies which are floated from time to time.

This is satisfactory, and at present owing to the unusually high dividends paid by cotton, jute and engineering companies, there is a very large amount of money awaiting investment.

I say "awaiting," because it is difficult to promote new companies at present owing to its being almost impossible to import machinery or to obtain technical experts from Europe.

I agree with the present system adopted by Government as regards feeder railways.

Forms of Government assistance.

In the case of new manufacturing companies I think that concessions, such as short-term guarantees by Government to purchase certain quantities of iron, cement or other goods, may be made with advantage, but beyond this I consider that industrial concerns should, like co-operative societies, be as far as possible self-supporting.

I am not in favour of exempting profits of new undertakings from income-tax.

While on the subject of income-tax, I wish to state that I do not agree with the present incidence of super-tax, which, in my opinion, tends to make directors increase the dividend out of proportion to the sums allocated to depreciation and reserve.

I recognize that the Government must raise money, but as the principal source of capital available for new enterprise is profits derived from existing industrial concerns, I think it is doubtful whether it is wise to impose severe taxation (super-tax) on such profits.

Banking facilities.

I consider that industrial enterprise is at present too much confined to Calcutta and Bombay; the establishment of banks in the mofussil would tend to remedy this.

One of the reasons why the small trader does not care to make payments by cheque is the stamp duty.

I believe that if the stamp duty on cheques were made half an anna or even three pies, instead of one anna, that there would immediately be an enormous saving in currency, and I think that owing to the increase in the number of cheques used, the revenue from this source would not be seriously affected.

This argument, in my opinion, also applies to the stamp duty in respect of share transfers.

The joint stock company will presumably continue to be the chief system under which industrial concerns can be promoted, and it is therefore very important that company's shares be easily and cheaply negotiable.

General.

The cost of *stamp duty*, transfer fees and brokerage now acts as a deterrent, and I think that the scale of stamp duty could be reduced without loss to Government, as at present all kinds of devices are resorted to in order to avoid stamp duty.

In addition to the foregoing suggestions to popularize banking, I think that a system of bankers' clearing on the lines of English "country clearing" might be inaugurated

### ORAL EVIDENCE, 22ND NOVEMBER 1917.

*President.*—*Q.* You raise the question about the want of mofussil bank branches. You consider that the industrial enterprise is at present too much confined to Calcutta and Bombay and that the establishment of banks in the mofussil would tend to remedy this. We had a somewhat striking case before us; for instance, in Bihar where the indigo and sugar industries are considerable, if not flourishing, we found that there was actually no branch of any recognised bank in a place like Muzaffarpur. Why is it? Whose fault is it and can we do anything in the matter?—*A.* I think it is very difficult to establish mofussil branches owing to the cost of European staff, and difficulty arises also owing to the want of confidence of the people among themselves to a great extent.

*Q.* It has been suggested as an outcome of your reply or a similar reply, that if you are going to give young Indians an opportunity of becoming more than ordinary clerks in the bank there should be a system by which young men can qualify themselves to become assistant managers and managers of small branches by passing an examination similar to that held by the Bankers' Institute, which would maintain the standard of professional qualifications in such a way as to make it possible to obtain a large number of men suitable as branch managers. Do you think that is in any way practicable?—*A.* I think it is gradually becoming more practicable. My bank for instance employs at least six Indian assistant accountants at the present moment who are doing work which is ordinarily done by junior Englishmen elsewhere—up to a point.

*Q.* And those men are qualifying to be branch managers?—*A.* I cannot say. That is a question for my Board. Some of them are doing well.

*Q.* You think that it would help if we had established in India something like the Bankers' Institute?—*A.* Three of the Indian members of the staff of my bank have already passed the Institute of Bankers' examination. Two of these three men are actually holding appointments superior to the ordinary clerical appointment at present, and we have given them substantial gratuities when they passed these examinations such as I got myself in England.

*Q.* Do you think that that will extend?—*A.* I think so.

*Q.* In that case you will be in a position to establish a large number of mofussil branches?—*A.* My bank is establishing mofussil branches—I do not think that I can speak on the subject without the permission of my Board.

*Q.* I am speaking of banks generally. You cannot commit your own bank.—*A.* I cannot commit my own bank to establish branches.

*Q.* The business available in small towns would not be very great?—*A.* No, not in the mofussil. I have had some little experience in the Punjab and people there have not the same idea of meeting their liabilities on due date as they have here. Here the ordinary merchant realises the necessity of meeting his liabilities at once and he does so. I think in Bombay and Calcutta among the ordinary traders, European and Indian, the standard of punctuality in financial matters is quite good, but in the mofussil the people are inclined to put off and postpone their engagements because they do not appear to realize the importance of meeting their liabilities on due date—this adds to the difficulties of the up-country Banker.

*Mr. C. E. Low.*—*Q*. What class of business does your bank finance?—*A*. I think we do all classes of business with the exception of foreign exchange operations which we do not touch.

*Q*. You finance goods in transit?—*A*. Yes, to a certain extent, but not to a very great extent. We finance raw cotton, we finance mills, we finance piece-goods, and indirectly linseed and opium—in fact all classes of commodities. We also buy hundis, mercantile bills, and short period bills.

*Q*. You have a certain amount to do with fire insurance?—*A*. A little. We do not interfere with insurance if we can avoid it. We let the people choose their own companies and get their goods insured. Provided the company is a good one we say nothing more.

*Q*. You say that one of the reasons why the small trader does not care to make payments by cheque is the stamp duty. What are the other reasons?—*A*. The man pays by cash. The man has a distinct objection to giving a cheque because of the stamp duty.

*Q*. You are alluding to Bombay?—*A*. I am alluding to India generally. My suggestion as to cheques, if adopted, would economise currency and help Government enormously.

*Q*. The ordinary trader in Bombay takes the risk and the physical worry and inconvenience of handling the sum of money and he has to send it on through a peon?—*A*. Yes.

*Q*. And the peon may walk away with it; and he submits to this rather than part with the anna?—*A*. That is my contention. The bulk of the cheques passing in the bazaar are never posted at all. They are sent nearly always by messenger.

*Q*. If the amount is a small one. People do not object to half an anna for postage, and do you think that they object to one anna on the cheque?—*A*. I think that is a very strong point indeed and I have considered it carefully.

*Q*. Is it due to the fact that the recipient does not know what can be done with the cheque?—*A*. I think it cuts both ways. If cheques became very common, the ordinary man would have a banking account and pay into his account. Banks would not be called upon to give actual cash for a cheque as a general rule—the cheque would be debited to one man's account and credited to another party's account. It would be a very cheap and economical form of exchange.

*Q*. The small trader pays in cash because his creditor insists on having cash rather than cheque?—*A*. That is the tendency. The use of cheques is increasing very rapidly at present.

*Q*. The stamp duty is not standing in the way?—*A*. It is increasing rapidly, but it would increase infinitely more so, and I know for certain that many cheques are drawn for large sums, say, Rs. 10,000, and this amount is subsequently divided up and paid to several persons in cash. My contention is that if the stamp duty on a cheque were 3 pies only, the client would draw, say, half a dozen small cheques instead of one cheque for Rs. 10,000.

*Mr. A. Chatterton.*—*Q*. Will that be encouraged by the banks—they will have to deal with a very large number of small cheques?—*A*. At the beginning the bank might take objection. In England it used to be considered ridiculous to issue cheques for anything less than £5, but now cheques for small amounts are common. When I came to India many banks laid down a rule that cheques for less than Rs. 50 must not be drawn, but cheques for less than Rs. 50 are drawn now, and are quite common.

*Mr. C. E. Low.*—*Q*. As regards the question of a stamp duty on share transfers, the stamp duty is at present evaded by blank transfers?—*A*. Yes, very largely.

*Q*. That is a sort of unlawful flexibility which has crept into the system?—*A*. Because the duty is considered to be unfair and excessive. That is the view I take of it.

*Q*. What is the duty?—*A*. Half per cent.

*Q*. On taking up new shares?—*A*. On taking up shares in a new company there is nothing at all. If you apply for shares in a new company, you do not pay any stamp duty.

*Q*. Are there not also certain other reasons for passing and accepting blank transfers not containing stamp duty?—*A*. In most of the companies, particularly companies outside Bombay, the transfer fees are negligible. In Bombay they are not very severe.

*Q*. Who levies the transfer fees?—*A*. The company.

*Q*. Are there any other reasons for this blank transfer system in this country over and above stamp duty?—*A*. I do not think there are any other reasons of note.

*Q*. What about the system of settlements?—*A*. The shares are actually bought by one man and he holds them for one month or more, but if the transfer fees were reasonable he would put them into his name. At present he frequently loses the dividend, or it lies unclaimed. Rather than pay this heavy stamp duty he would go through some amount of trouble and inconvenience and he does so. And I think that the Government by making the stamp duty so very high are themselves the losers.

*Q.* To what extent are the transfers made?—*A.* Assuming that there are 25 shares standing in the name of Jones, and Smith becomes the purchaser, Smith does not sign the transfer deed; he keeps it blank. If the stamp duty were more reasonable, my contention is that Smith would sign the transfer deed and would have the shares transferred to his own name.

*Q.* Is the practice of keeping goods on which monies had been advanced by a bank under the bank's lock in a godown largely prevalent in Bombay?—*A.* Yes. In my case the bank has custody of the keys of the godown and the mukadam has not the key as far as I know. The lease of the godown is transferred to the name of the bank and that gives the bank possession.

*Q.* They transfer the lease?—*A.* That is one of the easiest and cheapest ways of obtaining possession.

*Q.* Does it not require registration?—*A.* No.

*Q.* Is that system pursued up country?—*A.* Yes. Goods, such as jute, raw cotton, etc., which are readily stored in godowns, can be dealt with in that way. Linseed is also easily stored.

*Q.* To what place is that sort of transaction limited on this side of India? Would you find it in Ahmedabad?—*A.* I think so. I have no experience of that. We have no branch in that place.

*Q.* You do not know whether any system of approval or licensing of such godowns will facilitate matters?—*A.* I could not say.

*Q.* These godowns are recognised by whom?—*A.* In the case of Colaba Cotton Godowns the fire insurance association examine the godowns from time to time and they make certain regulations. They have recently ordered that a band so many feet high should be put up or painted on the wall of the godown, say 15 feet high, within which limits bales of cotton may be stacked.

*Q.* Do you know to what extent that sort of system prevails up country?—*A.* I have no experience.

*Q.* Have you any views on the subject of industrial bank? How far do you think it is suitable or possible for a country like India?—*A.* I think there are great possibilities for an industrial bank in India.

*Q.* By an industrial bank you would include a bank that finances more or less new propositions regarding the prospects of which expert opinion will naturally be required?—*A.* Yes. Personally if I were in the industrial bank and about to finance some undertaking I should say that the bank, in addition to anybody else, should employ an expert to advise on that subject.

*Q.* Where is your expert out here?—*A.* You will have to get one.

*Q.* I refer to the absence of, or the difficulty of obtaining, expert advice. Either you have got to confine your undertaking to a very a narrow phase of industry, which you feel to be safe, or you will have to spend a lot of money on getting experts.—*A.* Supposing you were going to start a great bridge building firm or something of that kind, you would get the expert in exactly the same way as the Municipality brings out an expert to advise on a scheme. They will bring out a man to advise on the particular scheme and he will have to be paid, and then he will go back to his place.

*Q.* When you want a new industry started in this country, it will be necessary to bring out one expert to work out the scheme and show how to run it, and the industrial bank will get another to show how it can be financed? That is not very economical?—*A.* I regard this expert business in the same way as consulting engineers. If you go for an engineering scheme you employ consulting engineers.

*Q.* There are lots of engineers here?—*A.* Very few that I know of, purely consulting engineers corresponding to that particular section of the profession in England.

*Q.* Supposing Government started much larger industrial operations than it has at present and they had a certain number of experts for various purposes, how would the industrial bank look at the opinions of such men?—*A.* If the industrial bank were satisfied as to the men they would be only too glad to place considerable reliance upon their opinion.

*Q.* I mean to say, they would not, of course, be bound by the technical opinion?—*A.* The industrial bank would form its own conclusion, thereon.

*Q.* They will have to form their business estimate of the man's technical opinions? They will see how the thing works from the business point of view too?—*A.* Yes.

*Q.* It will be difficult for the industrial bank to confine itself, at any rate at first, to the financing of industries?—*A.* Yes. It will be so, more particularly at the present time.

*Q*. You will have a tremendous lot of money locked up?—*A*. Provided the money that will be locked up is not short-term money, I do not think it will be so unsafe, but if the industrial bank borrowed money for three months and locked it up for five years, it would be very unsafe.

*Q*. I had more in my view this. Did the industrial banks of Germany begin in the ordinary banking way and work more and more towards financing industries, or did the Government go and offer the bank capital to start a lot of industries at once?—*A*. I should say that the former view is the correct one. I cannot speak from actual knowledge.

*Q*. There is a certain amount of evidence in that direction and it would seem the safer way of doing things. It is more likely to give you a wide business connection to start with. which will enable you to form opinions about the propositions brought forward?—*A*. In England the industries have grown from very small beginnings to big firms. In India in the present condition it seems to me better and more profitable to start off a concern on a fairly big basis. In my home there are silk mills. The ordinary silk manufacturer begins with taking a room in a mill and buying power and the business gradually expands. Here it will be impossible to do that. You must begin with a fairly big block.

*Q*. Is it not said that England is the home of hundred thousand pounds businesses and Germany five million pounds businesses, and is it not possible that the German system of industrial banks rather tends to the formation of large aggregations of industrial capital?—*A*. I am inclined to think that it is probably a good thing under modern conditions.

*Hon'ble Sir R. N. Mookerjee*.—*Q*. As regards the forms of Government assistance, you say, " in the case of new manufacturing companies I think that concessions such as short-term guarantees by Government to purchase certain quantities of iron, cement, or other goods may be made with advantage." What do you mean?—*A*. Supposing you are starting a cement factory, my view is that Government should undertake, if it comes up to the specification standard, to buy the cement for five years up to so many thousand tons a month—I do not think that Government should undertake for twenty years to buy your cement. I think they might undertake to buy your cement for five years or two years in order to give you the certainty of a customer to begin with.

*Q*. You mean purchasing.—*A*. Yes.

*Q*. Do you advance money on buildings and machinery?—*A*. Not very largely. We do do that to a small extent. We prefer to advance against liquid assets. I do not say it is always the case.

*Q*. You remarked that in the mofussil the people would not keep to their engagements with punctuality. Is this observation from experience or your general observation?—*A*. It is ten years since I was up-country, and I think I may say that the mofussil trader has not got—I do not say he does not meet the obligations, but he has not got the same ideas of promptitude and punctuality as the corresponding people have in Bombay. I do not say that they do not meet the obligations but they have not the same view of punctuality. I found that up-country.

*Sir F. H. Stewart*.—*Q*. How long were you in Parr's Bank?—*A*. Five years.

*Q*. Was that in London?—*A*. In the provinces.

*Q*. In the Alliance Bank of Simla?—*A*. Three years, and ten years in the Bank of India.

*Q*. How long has the Bank of India been established?—*A*. Eleven years. I came very shortly after its establishment.

*Q*. Has the Bank of India branches?—*A*. No branches whatever.

*Q*. What is the composition of the staff?—Can you tell me?—*A*. We have at the present time a manager, myself and two other Englishmen, a head shroff who is an officer of the bank with considerable responsibilites—he is a Parsee—and we have six Indian assistant accountants to whom I have just referred, and a staff of about 80 or 100 clerks.

*Hon'ble Sir R. N. Mookerjee*.—*Q*. Does the shroff give any deposit?—*A*. I am not at liberty to answer that question.

*Q*. Is he the cashier?—*A*. Yes.

*Sir F. H. Stewart*.—*Q*. Can your staff rise to the position of accountants?—*A*. Three of the men I have referred to are men whom we have selected from our own clerical staff.

*Q*. What previous training had your assistant accountants and the clerical staff before they came to you?—*A*. When we started we had to take men from other banks, and now we get our own men and train them ourselves very largely and several of them have passed the Bankers' Institute examination. The examination papers are sent here from London and the examination is held in one of the banks in Bombay. Certainly two of these men have passed this examination.

*Q.* Would you distinguish between literary abilities and practical abilities? Would you consider these men fit to be put in charge of branches?—*A.* I think the question will have to be decided by my Board as to whom to put in charge of a branch. I cannot very well commit my bank.

*Q.* Would you agree that in banking, practical experience is the thing that counts?—*A.* And something more than practical experience. One of the difficulties here in my opinion is that a man who has the same education and comes from a class corresponding to my own class in England—my father was a bank manager in England—would not ordinarily serve in a bank here.

*Q.* You have got to create a new class?—*A.* That particular class is trying to go in for Government service or for partnership in a firm or something of that kind.

*Q.* You refer to the shroff or cashier. That business is largely hereditary?—*A.* Not here. It is a different system altogether, I think, from the Calcutta system.

*Q.* In your last sentence you refer to the possibility of inaugurating a system of bankers' clearing on the lines of English country clearing. Can you develop your suggestion a little further.—*A.* I think it would be a difficult thing to develop.

*Q.* Will you explain what you mean by the bankers' clearing?—*A.* If you are living in Sheffield and I am in Lancaster, and you send me a cheque drawn on Sheffield, I pay it into my bank which would send it down to London which is one of the clearing centres and the cheque would go back to Sheffield, and the whole exchange takes place in London. If you are living in Nagpur and I am at Lahore, the Lahore people would send it to Nagpur and cash the draft. It is a very laborious system, and it does not tend to the free use of cheques and banking. I would have three centres for clearing, one in Calcutta, one in Bombay and one in Madras or Allahabad.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* You would want the Government to purchase the products of manufacture—only to meet Government requirements—*A.* I should say so. I would not suggest that Government should purchase for other people, but for its own requirements in the Public Works Department.

*Q.* Your bank has confined itself to the Bombay business only?—*A.* Yes.

*Q.* Because there is a very big scope in the city and you do not want to go up-country?—*A.* We have done very well in Bombay.

*Q.* You get big business now? Does your bank intend to open branches?—*A.* As regards the future my bank may consider the question of opening branches, but at present our staff is only sufficient for our business in Bombay.

*Q.* Are there banks in the city which are managed by Indians?—*A.* There is one bank managed by an Indian. There is more than one—one or two I think.

*Q.* As regards stamp duty, you say that if there is a reduction in stamp duty business will increase and Government will get more revenue?—*A.* Yes.

*Q.* What deters them? The big fee?—*A.* In my opinion, the big fee for stamp duty is largely responsible for the evasion of registration of transfers.

## WITNESS NO. 325.

*Mr. Lalji Naranji.*

### MR. LALJI NARANJI, *Manager, Mooljee Jaitha and Company, Mill Agents, Bombay.*

### WRITTEN EVIDENCE.

I am solely managing Messrs. Mooljee Jaitha and Company's affairs which firm are agents of the Khandeish Spinning and Weaving Mills Company, Limited, and of the New East India Press Company, Limited, and own several ginning and pressing factories in Khandeish, Berar, Barsee and other districts.

Capital.

I started a spinning mill at Sholapur in 1907 with a small capital of eight lakhs. I had no difficulty in getting capital. Capital is drawn from the general investment knowing public of towns and cities. People of villages not sufficiently educated know very little of other investments and have little or no faith in industrial concerns save in railways which are running in their districts and which they see earning.

Cotton ginning and pressing factories in many places are more than are required. The result is that they make a pool agreement and only allow necessary factories to work, and all share the profits in a proportion they fix themselves. I think that if Government, knowing the size of the crop, were to allow in certain places a fixed number of ginning factories it will be much better. The present tendency of having the first crop as early as possible leads to ginning being made sooner. The ginning factories therefore work, in a real sense, fully for two months only. If agriculturists were supplied with gins specially suitable for the cotton of their district on the spot, on the hire-purchase system, such a step will not only preserve good seeds, but will save a great problem of labour which is always short from November to January—the cotton-ginning season. The system suggested above will bring the crop from the fields very soon and instead of *kapas* coming for sale cotton will come to the market for sale. In every district groups could be made in cotton fields. Gins could be given, from 2 to 4, which can be run by bullock power, or by oil engine, or by some easy method of driving which may be suggested by expert Government Engineers. Ginning under such circumstances will be more quick and efficient. Also if the cultivators were to gin their own *kapas* and bring their cotton to market the stuff will be purer than now. At present *kapas* is bought not by consumers but by middle men and local merchants, who, to secure profits adulterate low quality with good *kapas* to lower the average cost. This will automatically cease. Again cultivators bring their *kapas* and sell in the market and have again to buy cotton seeds for consumption by their animals. The above suggestion will save carriage of all seeds. Only surplus seed will be sold by the cultivators. The simplest method of working gins at the fields can be recommended by Government experts.

Cotton requires to be financed in an organized way. I believe in Trade Guilds or Trusts such as exist in other countries. If a limited number of such Guilds are encouraged by Government it will do much good to cultivators. Such Guilds, of course, will compete with private small investors; but these can put their small capital into big Guilds started by big financiers. Such Guilds or Trusts will require the co-operation of Government in the following ways :—

(1) To aid cultivators financially when they commence sowing operations by giving them good uniform seed through the agency of District officers.

(2) To make such laws as shall make cultivators of particular districts compulsory for them to borrow funds or money where such Guilds operate.

(3) Guilds or Trusts shall operate only in particular districts to be settled by Government. No other Guild to be allowed to be started in particular districts.

(4) To supply such Guilds list of different villages with names of cultivators, who grow cotton.

(5) Guilds to supply every reasonable need of the cultivators every time from the commencement of sowing crops till the crops are sold in the shape of supplying good seeds at cheapest price, good implements and getting good prices at the time.

(6) This will enable Government to control all products of the country on any emergencies, such as war, famine and any natural calamities.

(7) Reasonable commission on sale to be allowed to such Guilds.

(8) One-third of the capital if brought by such Guilds, two-thirds be financed on that margin by Government fed-banks.

(9) Guilds bound to finance cultivators and cultivators bound to get all products sold through such Guilds; both to be bound under legal obligations.

(10) The Guilds shall be source of Depôt to supply every time every information regarding their products to their constituents.

(11) Government to have Directors on such Guilds and accounts to be audited by certified Auditors.

(12) Guilds to have their representatives in Japan, Continent and Liverpool, principal consumers of Indian cotton.

(13) Guilds of different Provinces to have one central City where each can get information from the others.

(14) Representatives in Japan, Continent and Liverpool may be appointed jointly by different Guilds of different Provinces.

(15) People being not accustomed to such Guilds and not knowing their advantages may be suspicious in the beginning, but persuasive people be appointed at the head of such Guilds.

(16) Capital could be collected from each district without any difficulty.

(17) This will save many unnecessary frauds committed on poor ignorant cultivators.

(18) The Commission to be charged shall be fixed after working present costs.

(19) Statistics of cotton produced and consumed in several countries of the world be circulated in vernacular to each district by such Guilds. Probable average and probable fertilizings of different districts also be made known to them.

(20) Owing to the deplorable state of education verbal system of information be organized but people must be made familiar with everything concerned with their products.

(21) Railway freights of different districts be compared and mended. Such as cotton from Nagpur to Bombay will cost much less than cotton from Murtizapore to Bombay. Such irregularities to be studied and remedied.

ORAL EVIDENCE, 22ND NOVEMBER 1917.

*Mr. A. Chatterton.*—*Q*. About these Guilds, I don't understand what you mean, are they co-operative societies registered under the Co-operative Societies Act, or are they limited liability companies?—*A*. Limited liability companies.

*Q*. And Government must give monetary help and various other things to start a limited company?—What will be the main function of these Guilds?—*A*. To finance cultivators.

*Q*. In helping to sell their produce also?—*A*. That will be their main duty.

*Q*. Will the existing industrial and commercial organizations of the country be in favour of these Guilds? Don't you think that there will be a great opposition to any scheme of this kind?—*A*. I do not know, there may be. People might differ.

*Hon'ble Sir Fazulbhoy Currimbhoy.* *Q* You want that Guilds must be formed and the cultivators must be given a chance to sell their crops at a higher rate, is it not?—*A*. Yes.

*Q*. And even to have agencies in Japan, Liverpool and other places?—*A*. Yes.

*Q*. In what way will this selling of cotton at a higher rate to America and Japan, by forming Guilds, help the indigenous industries of this country?—*A*. It will be to the advantage of the cotton cultivators.

*Q*. We are dealing with industries; it is only the cotton trade that will thrive?—*A*. The cotton industry must thrive; Government is interested in cotton cultivation.

*Q*. But it is not an industry?—*A* You wrote to me that I should refer to gins; ginning is a manufacturing industry.

*Q*. You have just drawn up a scheme for helping the cultivators, but do you know that at present the cultivators are getting rid of their crops?—*A*. Yes, they are.

*Q*. Do you think there is a system of advancing money, are they getting money in advance? *A* Yes, in Berar and Khandesh.

*Q*. What percentage of the value?—*A* The percentage has decreased in the last three or four years. In Khandesh the percentage is nearly 50 and in Berar it may be 30 per cent.

*Q*. But many of the cultivators are now rich and by forming these Guilds don't you think they will force these men who have got some money to take advances?—*A*. I think the cultivators themselves would like it.

*Q*. Would you take in people who are interested in cotton cultivation?—*A*. They will join these Guilds if they are established.

*Q*. Those who are interested in cotton cultivation?—*A*. Big cultivators?

*Q*. Yes, big landholders?—*A*. They will also join these Guilds.

*Q*. Rich capitalists also?—*A*. They may also join.

*Q* You want to force them to take advances?—*A*. They can come in.

*Q*. If you pay them better prices in that way, they might come in?—*A*. If there is any organization, they can get better prices for their crop?

*Q* Your whole point is to get for the cultivators more money for their crops, that is, they should not be cheaply sold?—*A*. Yes.

## WITNESS No. 326.

Mr. G. Miller.

MR. G. MILLER, *Manager, Chartered Bank of India, Australia and China, Bombay.*

### WRITTEN EVIDENCE.

### *Financial Aid to Industrial Enterprises.*

My experience of raising capital for industrial enterprises is confined to the banking or collecting side of the operation and my knowledge of the conditions which affect the actual raising of capital does not carry me beyond the banker's usual functions.

**Government assistance.**

I am of opinion that Government aid should take the form of a loan at a nominal rate of interest, say 5 per cent., to the extent of say, half the capital required, the loan to be repaid gradually as soon as the enterprise passes into the profit earning stage. Assistance in this form would entitle Government to exercise some control over the venture which could be done by a Government audit.

**Financing agencies.**

There should be no trouble in financing an industry with a claim to Government support, but the difficulty in this country lies in the apathetic attitude displayed by the people themselves towards projects for their own well-being and advancement.

There is ample room for an extension of banking facilities devised in such a manner that they should be able to reach the farmer.

*(Mr. Miller did not give oral evidence.)*

## WITNESS NO. 327.

MR. G. E. MARJORIBANKS, *Divisional Forest Officer, W. D., Kanara.*

*Mr. G. E. Marjoribanks.*

### WRITTEN EVIDENCE.

### *The Policy and Working of the Forest Department.*

The two main methods of extraction and disposal of forest products in this Presidency are—

- (i) by standing coupes—
  - (*a*) sold for a lump sum,
  - (*b*) payment for unit extracted;
- (ii) extraction by departmental agency, *i.e.*, either by contractors financed by the Forest Department or by directly employing labour, with subsequent sale of the produce at a depôt.

Method (i) (*a*) is generally employed where the timber to be removed is not very large nor individual pieces very valuable or where the produce consists partly or wholly of fuel; examples being the pole coupes of Thana and the fuel coupes of Karwar. The method is well suited to where demand is brisk and contractors and labour fairly plentiful, so that the market value of the material in the coupe is pretty safe to be realized. Method (i) (*b*) is employed where material is spread over a large area of difficult country, rendering the estimate of a fair lump sum a speculative business as in the dead teak coupes sold in the Dangs. The purchaser cannot gauge what the value of the "coupe" may be, but he knows what any unit of timber, *e.g.*, a measured ton, is worth to him and he pays on the amount of timber extracted at a given rate per unit.

Method (ii) departmental extraction is resorted to largely where big teak and valuable junglewoods are concerned as in Kanara and part of the Dangs, *i.e.*, where either the remote and difficult position of highly valuable timber renders the fixing of its true market value standing in the forest so difficult that Government would probably lose by selling it there, *e.g.*, in the mixed Kanara teak forests; or where, as in the North Dangs, operations consist of ridding the forests of deteriorated trees of good species, which are therefore looked on with suspicion by the purchaser but from which the timber actually obtainable in the process of conversion into logs is known to the Forest Department to be worth a high price when delivered close to the market.

2. It is often difficult to judge which of the above methods is most satisfactory, but it may safely be left to the Forest Department to decide in each case. On the whole, departmental exploitation is the most highly paying, but it is necessarily limited to what the available staff can cope with: and even were Government disposed to sanction very much larger establishments than now exist, there is a limit to that which can advantageously be kept in the forests. The presence of a very large number of officials presses hardly on the people. In the Dangs of Surat forest division a very useful system exists of employing extra temporary establishment on works of extraction and on roads during the fair season only. The advantage is that the people are rid of them at a time of the year when European supervision is largely removed, and Government is saved the expense of entertaining them in the slack season. In Gujerat those seven-monthly appointments are very popular: many are taken year after year by the same men, and they form a good source for recruiting foresters from. If the same be found in other parts of the Presidency the system could be usefully extended.

3. There is no question that for further development in the output of forest produce a certain change of policy is required.

The Forest Department require more encouragement from Government for practical experiments in exploitation of produce, even when an immediate gain is not assured. The purchase of two timber haulage plants, which proved for that purpose unsuccessful, was recently criticized by a late member of Council as an "ill-considered scheme," yet both plants have already more than paid their cost as moveable saw-mills. It should be made easier for Conservators of Forests to employ extra establishment (temporary it may be, possibly permanent later on) for definite industries which it is desired to develop. An example is charcoal-making—an industry which, after timber, there is possibly more urgency for in the forests than any other. Ordinary purchasers of standing coupes have not the enterprise to take this up in the Southern Circle. The Forest Department could at least begin it, but it will require a certain special staff of well trained men, free from the ordinary executive responsibilities of a range.

4. The policy of Government ought to be, and I think on the whole is, to place as much raw forest material as possible either directly on the market or within easy access to it by the industrial community. Timber in the log and fuel form the great bulk of raw produce from the forest The Forest Department is sometimes criticized for not establishing its own machinery for the more complete conversion of its timber in the forests. This criticism is unsound. Elaborate converting plant inside the forest is out of place: not only would it be difficult to maintain, but it would put up the cost of ordinary operations of extraction. Forest saw-mills should be confined to working up material which is not valuable enough to bring out to sale depôts in the log, *i.e.*, where it is desirable that only the best of the timber, and that in a readily saleable form, should be subjected to the cost of transport Kept to their own sphere, forest saw-mills may be of the greatest possible value.

5. An important question arises whether the Forest Department are doing enough to open the forests to a variety of industrial enterprises connected with utilizing a number of what may be called subsidiary products This is a question which requires careful thought. It is a not uncommon attitude to regard the forests as a sort of untapped mine of wealth capable of yielding untold revenues if only the forest officer will unlock the door.

Now, one of the most serious considerations is that the labour supply is already barely sufficient for extracting all the "possibility" (*i.e.*, the annual increment) of timber and other products for which a market is already established. It is therefore necessary to see that subsidiary industries are not allowed to call the labour off the already highly-paying main forest industry. I am not saying that no encouragement should be given to develop subsidiary industries dependent on the forests, but I would concentrate such encouragement on industries which will utilize to advantage a very large bulk of material which is now a menace to the reproduction of the best timber species. The chief of these, in my opinion, are charcoal-making, extraction of second class timber species and paper-pulp manufacture from bamboos.

6. In the case of teak and first class junglewood species the fine timber producing the bulk of the annual revenue is taken chiefly from mature trees spread over a large felling area. The nature of the vegetation in the big teak producing forests of this Presidency is such that a method of concentrated fellings of this species would result in its extermination. Still these scattered selections, expensive working though they cause, pay handsomely owing to the high individual value of every log taken out, and the same applies to certain other valuable species. But when we come to what may be called second class woods, such as jamba and kindal, this selection of individual stems over a large area no longer pays. Consequently this large class of species has been very little worked in the past. Some of them form nearly pure forests by themselves; when present in a judicious mixture with teak they improve the teak, but for the greater part they are tending to oust it. The only hope is to create an industry which will enable us to tackle these second class species *en masse*, *i.e.*, clear-cut them where found desirable, converting them on the spot. It is here that charcoal-making on a large scale, combined with something like the manufacture of wood-paving blocks, may be found to be industries which will not only yield a large revenue from otherwise unprofitable species but help to solve the problem of the successful reproduction of teak.

7. Government should take up these industries in test areas first. They should put in the necessary plant to work them. But it will be useless doing so unless they provide mechanically trained establishment. They cannot be simply tacked on to the ordinary duties of the protective staff.

8. A word may be said about extraction of bamboos for paper pulp. I believe it is established that our two main species of bamboo make excellent paper pulp. The question is who should undertake the business? My opinion is that Government agency should be confined to cutting and bringing the bamboos to factory sites outside the forests, selling them there by agreement and at a moderate profit to any approved firm who can show that it is capable of undertaking the manufacture. I consider it is entirely outside the province of the Forest Department to go in for the making of paper pulp itself.

9. As to concentrating special kinds of trees in limited areas, the question has been partially answered above. The idea is an alluring one and by no means new. But it is only practicable to a small extent. It was tried in the case of rubber plantations, which for climati

reasons were a signal failure. Even regular plantations of teak, a tree of recognized and great value and generally suited to the locality, have never been a financial success in this Presidency. Several such plantations were made about 50 years ago and still exist, but financially they have all been failures, though we are now trying to make the best we can out of them. It is an interesting fact that in Kanara the size and quality of teak vary nearly indirectly to its numerical proportion among the species, and this is direct indication that it grows best in mixed forest. The policy is now to endeavour to *favour* teak in the localities in which it shows a tendency to grow freely, both by direct planting and by fostering the natural seedlings and freeing them from surrounding growth. This is the only economical method, and it could be greatly developed if a small extra establishment were provided for that duty and no other. Plantations of casuarina on the other hand cannot only be grown unmixed on suitable localities (*i.e.*, on sandy soil with high level of subsoil water), but have already been formed in several places on the coast and are being worked at a profit.

10. As regards measures for reducing the cost of assembling raw forest products :

The M. and S. M. Railway has already special (half ordinary) freight rates for fuel from June to January for certain stations. If the rates for charcoal, myrabolams and timber of second class species could be specially reduced, it would help considerably to encourage the development of the industries concerned.

11. More than one scheme of railway construction for tapping the main forest areas is already being considered by Government.

12. For the rest the most pressing and obvious measure for reducing cost of assembling raw forest products is improvement and extension of roads. It is a curious fact that, although every road constructed by the Forest Department can be proved to have resulted in increased net revenue (and that is taking the narrowest view of their utility), very little encouragement to develop the system of forest roads has so far been received, except in a few cases. One of these cases is that of the leased Dangs Forests in the Surat Agency.

Thanks mainly to a fairly liberal annual grant for road construction there, the revenue went up in five years from under one to two and a half lakhs, and a heavy deficit was converted into a substantial surplus. But although some hundreds of miles of forest roads have now been constructed in this Presidency, I am unaware of any extra establishment having been given in any district for their upkeep, the result of which of course is (i) that they are not properly kept up and (ii) that establishment is employed on them which ought to be doing other duties.

13. It is possible, if the roads in forest districts were brought to a much greater degree of perfection, that motor-lorry transport would be found practicable for heavy forest produce, and if so a very great step towards reducing both time and labour (and therefore cost) would be accomplished. It is conceivable that after the war is over a number of heavy transport motors will be available which would be suitable or could be adapted to carrying forest produce. But the opportunity will be lost unless road improvements are speeded up meanwhile. Roads would have to be vastly improved before they could stand this form of transport.

14. There are also possibilities in the use of mechanical devices for collecting timber from difficult situations out to cart-tracks and floating stations. These would chiefly come in where the more concentrated fellings were concerned. One great obstacle to their use is the fact that hardly a subordinate in the Forest Department has been trained to the use of such appliances. Consequently the first available pretext is used to cast them aside and revert to the old primitive methods of handling timber. We are badly in need of some rangers who are trained mechanics and fitters. We also require a Forest Engineer in at least every circle ; again, a great deal of money is spent by Government in keeping a class of forest officers known as Extra Assistant and Extra Deputy Conservators of Forests, who are for the most part general assistants to the Divisional Forest Officer. These men are, with few exceptions, Brahmin gentlemen of good general education and their pay ranges between about Rs. 300 and Rs. 800 : but though some undoubtedly do excellent work, their utility as a whole would be vastly enhanced, and the return in revenue to Government greatly increased, by the inclusion in their ranks of a few long-headed, hard-working, superior mechanics from Scotland or the north counties of England. Really good men could be got on the pay of the class referred to.

15. I must now refer to a matter which perhaps ought to have been mentioned earlier in these remarks. From the point of view of industrial development the complaint is often made against the Forest Department that it is not closely enough associated with the commercial world. There is a good deal of ground for this complaint, though to argue as some do that the average forest officer should be a businessman and every conservator an expert in commercial matters, is to take a wrong, because a narrow, view of the work of the forest service and the reasons for its existence. A very large part of its activities must consist in purely administrative work : in conserving and improving a vast estate and utilizing it, not only for the production of goods for the outside market, but to provide for the wants of the rural population,

and mitigate the heat and draught of a tropical climate. Indeed, it is now recognized by Government that the forest officers in many remote tracts of the country are alone in a position to get to know and understand the people and look after their welfare ; and the result is that in such tracts practically the entire administration is placed in their hands. Instances of this are the Supa, Virnoli and other "Forest Mahals" of Kanara, the "In-Forest" villages of Mandvi in Surat, and the Dangs Forests of that Agency. No "businessmen," pure and simple, could undertake such work, nor would the ends be met by sending businessmen into the forests. Forest officers are keenly alive to the commercial side of their professions : but I do think some link is wanting between them and the commercial world. This has to some extent been supplied by the Research Institute at Dehra Dun College, which comprises in its staff a Forest Economist. But it cannot be said that he satisfies the requirements of each province. It is too much for one man to do. This Presidency requires a man whose sole duties should be to find out the requirements of industrial firms and to what extent the Forest Department can supply them and arrange when practicable for this being done. He should be a sort of timber agent to Government, only his activities should extend to other produce besides timber. Preferably he should be a fairly Senior Deputy Conservator of Forests who by long experience of local conditions can decide what is a sound proposition to take up and which forest division can best supply an indent. He would get to know of what kinds of material it would be safe for the Forest Department to keep stocks in hand, what firms were sound to deal with, where tentative species could be given a fair trial, what standard sizes in building timbers are used, etc. I am sure many businessmen in Bombay would welcome the appointment of such an officer, who would be sufficiently free from administrative routine, to attend promptly to their requirements.

16. I deprecate the idea that a sort of grand transformation should take place in the methods of working of the Forest Department, or that there is likely to be a very sensational development of revenue in the immediate future. The revenues have been increasing steadily and satisfactorily for the last 12 years. My belief is that there is need for more money and more establishment, and room for considerable development of net revenue in the future, but that, having regard to the natural difficulties and scarcity of labour, this development will be gradual.

*(Mr. Marjoribanks did not give oral evidence.)*

## WITNESS No. 328

Mr. W. T. Pomfret.

MR. W. T. POMFRET, *Vice-Principal and Head of Textile Department, Victoria Jubilee Technical Institute, Bombay.*

### WRITTEN EVIDENCE.

*Note on the Development of the Hand-loom Industry of India.*

Hand-loom weaving.

My observations relate principally to the hand-loom weaving industry. This is one of the ancient industries for which the country is noted. It supports a considerable portion of the working people of the country. At present it has to struggle along in competition with the power-loom industry which is expanding ; and it may be said to be in danger of slow extinction. There appears, however, to be no reason why it should not hold out for several years. It is at present in the hands mostly of illiterate persons who lack enterprise, capital and organization. They barely make a living wage in ordinary times ; in abnormal seasons their condition becomes grave.

Ordinarily the method employed by these weavers for the preparation of the warp required is slow and expensive ; the time used in stretching and opening the warp in the loom is too much ; the method of buying the yarn and selling the cloth when made is uncommercial ; the very loom and accessories with which they work is primitive ; their knowledge, capital and organization are seriously defective.

Efforts have been made to combat these deficiencies by Government and by honorary workers, but I am inclined to think that the results show that such efforts have not made any appreciable difference, owing, I believe, to the controlling officers having to seek information from several sources to make up for their lack of large practical experience and high technical training of the industry.

The first great want of the weavers as a class is that their general intelligence and faculty of observation shall be improved and expanded by removing their illiteracy. This is an essential preliminary to all improvement and development. The dark dense cloud of illiteracy must be swept away. The weaver must be brought into light out of darkness. He will then be able better to appreciate the means necessary and to be applied for his improvement. The second great want is instruction in improved methods of work imparted with all possible practical details by sympathetic instructors fully conversant with all practical operations, and able personally to conduct such operations with a full measure of success. The commercial advantages and possibilities of the improved methods must be brought home to the weavers by the practical demonstrations of the instructors. Of equal, if not greater, importance is the need for placing within the reach of the weaver the means of utilizing his improved and extended knowledge to the practical purpose of earning his living by the application of that knowledge, and thus contribute to the improvement and development of the industry in the face of the growing competition of the power-loom.

Properly instructed and sympathetically led and assisted, there is no scientific reason why the hand-loom weaver may not for many long years to come prosper in this country; although I cannot disguise from myself the possibility of the ultimate absorption or conversion of a very considerable portion of the class of hand-loom weavers into power-loom workers.

Literacy.

Illiteracy can be removed by providing elementary education, but if this education is to be of any practical value it must include "drawing" as a complementary subject, for I believe that the artisan who can draw is infinitely better adapted to do his work with intelligence and satisfaction if he is able to express his own ideas and to understand those of others.

Technical help

In regard to technical help and instruction, I should suggest the establishment and maintenance of central weaving factories in the principal hand-loom weaving districts for purposes of experiment and practical demonstrations for imparting higher instruction in hand-loom weaving. These factories should be provided with up-to-date appliances and should be worked on commercial lines so as to demonstrate practically the advantages of improved appliances in regard to quality and quantity of the outturn of patterns as compared with the outturn by primitive methods. Another advantage of working the factories on commercial lines would be that the cost of working them will be brought down; the profits being used on experimental work. Such a factory would design and make so-called new looms, winding, warping and sizing machines, except in some detail, for some of the processes of weaving peculiar to this country. I am of the opinion that so far no loom has been made or designed which is superior to all-round work to the fly-shuttle loom, with a yarn roller, automatic take-up motion and negative let-off motion. If timber were made available at a fairly cheap rate to such a factory, a fly-shuttle loom would be made for about Rs. 55 and a pit-loom at about Rs. 20. The price of the loom, it will be obvious, is a very important factor for its economic success. The chief features of this type of loom are (1) low cost, (2) simplicity of construction and (3) it can be made in strengths suitable for making coarse or fine cloths with one weft and with the addition of a secondary motion for the making of cheap cloth of any pattern.

I am afraid the looms designed and constructed of wooden and iron parts costing from Rs. 120 to Rs. 200 will turn to be failures in this country, because (1) they cannot be repaired by the ordinary village carpenter or blacksmith, (2) they cannot be worked all day by the ordinary Indian weaver and (3) if the preparation of the warp yarn could be effected by a separate establishment as is done in other countries, there is no cogent reason why a practical capitalist should not go in for a number of power-looms worked by an oil engine with the certainty of an increased output and with almost the same initial cost, instead of buying a number of so-called improved looms. Although half a dozen at least of such looms are on the market at present, not one kind, I believe has been a success, worked singly or collectively, and I fail to understand the justice of Government grant-in-aid of such enterprises.

Winding, warping and sizing machines are on the market for preparing warp yarn for making almost any kind of cloth made in India. Such machines are in use at present time in Bombay mills for sizing up to 60's warp. In other countries there is very little difficulty in a manufacturer with a small number of looms getting the warp yarn sized in a separate establishment. To return to the central weaving factory, my idea is that it should comprise three departments :—

(1) Experimental work,
(2) Manufacture of cloth, and
(3) Instruction.

It should be under the control of a managing director with whom should be associated as members of the Board of Directors local men engaged or interested in the industry in whom the weavers of the districts have confidence.

In this factory experiments should be undertaken pertaining to (1) improved appliances in the preparation of local patterns of cloth, (2) testing of new appliances and machines needed for some of the processes in preparing yarn and weaving peculiar to the country, and (3) manufacture of new patterns of cloth.

The factory should also serve as a museum for exhibiting the products of the weaving centres of the country and the imported cloths which could be manufactured locally.

It should contain a suitable library wherein should also be a collection of very old books on weaving from which much valuable information can be obtained about the different stages of the progress of the industry in different countries. Such a collection will give a better direction to the labours of research makers, and save time, energy and money that may be expended on reproducing as new things which were once suitable but which may have been discarded later as out of date.

In this factory practical demonstrations should be given on the fly-shuttle loom, dobbies and jacquards and other appliances peculiar to the manufacture of cloth of the district. The demonstration must be given with modern healds, reed and yarn rollers.

Demonstration parties should be arranged who would visit the weaving centres of the district and convey to the doors of the weavers knowledge of improved methods and appliances, and fit up improved looms for the weavers and train them in the use of them till the weavers are able to handle the looms independent of the demonstrators. Small weaving schools with educational workshops attached should also be established wherever necessary; the work of the central and feeder schools should be subject to the periodical inspection of an inspector of weaving who should be a man with a fairly large experience of the technical and commercial parts of the industry.

**Financial aid.**

The weavers as a class live from hand to mouth. They have little or no capital and their credit is usually low. Owing to want of capital and credit the weavers are unable to buy greater lengths of yarn involving the necessity of using short warp and for stretching out and for opening out the warp in the loom about every six yards. The difference in cost between making a warp ready for the loom by the primitive and modern methods and what it means to the weaver may be seen from the following statement:—

| Modern method— | Primitive method— |
|---|---|
| Cost of winding, warping and sizing cotton yarns, annas 2 per lb. | Cost of winding, warping and sizing cotton yarns, annas 4½ per lb. |

There are at least three profits made between the yarn leaving the spinner and reaching the hand-loom weaver, of which two, it is considered, can be saved by greater capital and better organization.

At present it is not unusual for a weaver to be able only to secure sufficient yarn by all the means in his power, to make, say, four saris, and the worst feature of the situation is that when he has made his cloth he has to take it out of his loom and proceed to find a purchaser in the bazaar or elsewhere which in some cases means a day's loss of time. This he cannot avoid, as at present he cannot procure a further supply of yarn without selling the cloth made from the previous supply. A stronger organization and practical direction of work will give the worker greater profit and wages.

The Government will doubtless have found that it is very difficult indeed to get well trained and disinterested honorary workers to govern existing societies on sound and correct lines. My suggestion is that it will be far better to form weavers' unions affiliated to a joint stock company, and place them in charge of more competent persons, so that they may be supervised more frequently than hitherto and receive general advice more promptly and frequently. The joint stock company will very usefully serve as a balancing centre.

Each company may work from 5 to 10 of such weavers' unions to commence with, and each weaver holding shares to the value of Rs. 5 to Rs. 10 in the joint stock company, which may be either paid up in one instalment or by payment of Re. 1 on application, the remaining being paid up by the bonus accruing on the shareholder's purchases which may be two pies per rupee, and out of the profit of the company a portion may be set aside as bonus for weavers to encourage production. In addition each weaver member should pay into the union every month at least six pies for every rupee earned by him. The bonus and the savings may be invested by the union or it may be given to weavers in shares. This will make the union very popular.

The capital required may be raised by the sale of shares and by loans from the co-operative central bank, and to encourage the starting of such companies the Government may purchase shares of a kind in the company.

The managing director will purchase raw material and effect the sale of the finished cloth and maintain proper control over the unions.

**Within each weavers' union there may be a committee of supervision elected by the members of the union, and within the committee of supervision there will be the directors of the joint stock company and the Government director of this particular industry and the Government accountant.**

The weavers' unions and the companies should work with the view to enlist the sympathy of business experience and active co-operation of yarn and cloth merchants. Membership may be thrown open to such persons but not more than one-third or at the most one-half the number of directors to be elected from this class. Each weavers' union may be represented by at least one director in the joint stock company. The weavers to receive wages per cloth fixed by the directors and the committee of supervision. In case of a wage dispute the weavers may refer the matter to an Honorary Arbitration Board which should include the Director of the Industries. The chief functions of such an organization should be (1) to purchase such raw material as they may find necessary and on such terms as may appear to the directors reasonable and to keep a sufficient stock of the same ; (2) to supply yarn to members on cash payments and to grant loans of yarns ; in small or large quantities not exceeding at any time 75 per cent. of the value of the weaver's share money ; (3) to collect and arrange to sell to the best advantage the finished cloth of the members ; (4) when arrangements can be made to prepare warp yarn of suitable lengths on yarn rollers ; and (5) the company can enter into contracts for forward deliveries with cloth merchants with certain fixed rates and cover yarns against these contracts to the required amount with spinners, thereby ensuring profitable work for over a given period of time to the members of the union.

*Supplementary Written Evidence of Mr. W. T. Pomfret, Vice-Principal and Head of Textile Department, Victoria Jubilee Technical Institute, Bombay.*

*Q.* 44 (*a*). I am inclined to the view that lack of primary education must necessarily hinder industrial development if by primary education is understood an elementary education of a practical character suited to the needs and the life interests of the industrial population from the director down to the labourer. The education at present given in primary schools is more literary than manual. If manual training had a primary and literary education a secondary place of importance in primary schools, there will be created at an early period of the child's education a taste for manual work—a kind of industrial atmosphere which will bring industrial development in its train. The present system aims almost exclusively at the training of the head and appears to neglect that of the hand and the eye. Both are important : the latter more so from the point of industrial development, as it tends to improve the faculty of observation so important to industrial enterprises. The object lessons given should relate not only to natural objects, but should extend to objects used in agricultural and mechanical industries.

*Q.* 44 (*b*). My experience is mostly related to the textile industry here and in England. Except what has been done in the hand-loom industry recently by means of practical demonstrations in improved methods, nothing worth mentioning appears to have been done here to improve the labourers' efficiency and skill either by the employers or the labourers themselves directly. Much, however, has been done in an indirect manner by technical institutes turning out young men educated in improved and up-to-date methods who, if they choose, could in turn impart that knowledge to the workmen engaged in the industry, and with whom they are associated. and thus improve the character of the work. The Victoria Jubilee Technical Institute alone has during the last 30 years sent out young men so trained in textile manufacture. Instruction by practical demonstration was particularly successful with the hand-loom weavers at Malegaum, and I am inclined to think that it should be similarly fruitful in other weaving centres amongst uneducated weavers, and more so if the weavers had the benefit of a really good system of primary education.

*Q.* 45 (*a*). To improve the labourers' efficiency and skill rests mainly with the employers of labour and the labourers themselves. In England the employers select certain promising workmen, send them to institutes or other places for training, and offer to others inducements in the shape of "bonus" for improving their knowledge, efficiency or skill. It seems a matter of regret that here the employers do not as a rule show that keen interest in improving the workmen that the employers do in England, possibly because the employers here do not yet sufficiently realize that whatever tends to add to the efficiency or skill of the operatives or labourers results in the advancement of their industry, which means larger profit to themselves in the long run.

Here the labourers often change their field of labour, and most employers appear to encourage this unsteadiness, with the result that the chances of improvement are lost or are considerably reduced. For instance, it seems to be the practice here to move a jobber from one mill to another, not because of his efficiency in work, but primarily because he can bring in so many " hands." Such is not the case in England. If the employers of labour could but make up their minds to discourage this system and would make resolute attempts to keep the men in their respective places, it would be possible to improve their efficiency and skill by adopting the English method of training them simultaneously at technical schools or workshops for certain hours a week. To my mind, this change of place is a very serious obstacle in the path of the improvement of the labourers' efficiency and skill and has to be seriously dealt with in order that it may be brought under control, if not stopped altogether. It has struck me that, while much is done to watch and prevent unfit animals from being employed for plying, little is done to restrict manual labour which is physically unfit. The presence of unhealthy sickly labourers is bound to adversely affect the efficiency of others by distracting their attention from work. The number of broken down, emaciated, sickly labourers is not inconsiderable and requires special attention. Unless employers take a lively interest in the labourers or are made to take some such interest, it is difficult to see how it is possible to expect any serious improvement in the labourers' skill and efficiency.

*Q.* 45 (*b*) For the textile industry I am inclined to recommend for the uneducated workmen the direct method of instruction in well-equipped workshops (located at convenient centres) by qualified instructors through practical demonstrations. The instruction thus given should be followed by practical examinations on the results of which certificates of competency of different grades "fair," "good," "very good" should be granted. Thus in course of time the great mass of textile operatives or workmen will be classified under "trained" and "untrained," and as the value of the training rises, the number of the untrained operatives or workmen will diminish. Inasmuch as a man with a certificate is preferred to one without a certificate, the introduction of a system of practical examination with certificates covering various grades of proficiency is, to my mind, likely on the one hand to induce men to go in for such certificates, and on the other to help the employers in readily finding suitable men; thus creating ambition in the men and interest in the employers.

*Q.* 47. Most of the schools called industrial are not industrial schools at all. An industrial school, according to my view, is one which gives in one or more industries such practical training as would enable the student to practise that industry on leaving school. The only industrial schools proper in this Presidency are the Co-operative Credit Society's Hand-loom Weaving Schools, the Missionary Weaving Schools and the Weaving Departments of one or two Local Board Industrial Schools. The other so-called industrial schools really belong to the class of preparatory technical schools or schools for manual training. Industrial schools proper have hitherto proved fairly successful. The control of the latter has been entrusted to the Committee of Direction for Technical Education appointed by Government some few years ago.

*Q.* 48 The two systems are vitally different. The apprentice system omits preliminary training in Reading, Writing and Arithmetic. The school system insists on this training. The apprentices ought to be made to attend special classes attached to workshops for such training and for instruction in the theory of their work, such instruction being given by the direct method The products of the school system should be made to serve as apprentices to acquire the necessary practical experience under working conditions. The co-ordination of these systems is possible only by bringing the employers of labour and the managements of schools into closer relations with the assistance of the Government Departments of Education and Industries. In my view training classes should be established for apprentices and workshop classes should be provided for school-going children in convenient centres.

*Q.* 49. To my mind, it appears that the success of day-schools for short-timers will depend among other things, on (*a*) the assistance given by employers, (*b*) the control, if not abolition of the current system of frequent moving of workmen from one factory to another and (*c*) on the individuality of the teachers. If these factors are well regulated, there appears to be no reason why such schools or even night-schools should not be a success. In fact it has been suggested that for the co-ordination of the apprenticeship system to the school system such schools should be made available.

*Q.* 50. In my view industrial and technical and commercial colleges should be under the direct control of a committee on which should be represented the Department of Education, the Department of Industries and the industries themselves. A committee for the control and guidance of technical and industrial schools in the Presidency has been established by Government in recent years.

*Q.* 51. The training of supervising and technical staff is to a certain extent provided in technical schools and colleges. It must to a large extent be supplemented by practical experience in the actual position of supervisor or manager with responsibility attached thereto. It will depend upon the assistance given by the employers to promising products of technical schools and colleges to acquire this experience under working conditions. It is a question more of opportunities for development (so far as the best products of advanced technical schools or colleges are concerned) than of modifying the curriculum of instruction.

### ORAL EVIDENCE, 23RD NOVEMBER 1917.

*President.*—*Q.* I suppose you would like to concentrate your evidence as nearly as possible on weaving questions?—*A.* Yes; you might also go into the supplementary evidence which I sent to your Secretary a few days ago.

*President.*—We will consider that afterwards.

*Mr. A. Chatterton.*—*Q.* How long have you been connected with the Victoria Jubilee Technical Institute?—*A.* For the last ten years.

*Q.* Besides you have been for some time inspector of weaving schools in Bombay?—*A.* Yes, for about six or seven years.

*Q.* You have also toured in other parts of India?—*A.* Chiefly in the Bombay Presidency; at one time I was down in the Madras Presidency, but my chief work of inspection has been done in the Bombay Presidency. I was sent out on one occasion to the Madras Presidency to see the hand-loom work there.

*Q.* How many weaving schools are there in the Bombay Presidency?—*A.* Altogether in the Bombay Presidency there are about 13 or 14.

*Q.* You say in the first paragraph of your written evidence that the hand-loom industry may be said to be in danger of slow extinction: is this the result of your observations whilst on tour?—*A.* Not exactly that; it is the result of my past experience, and I have taken into consideration what has been done in other countries towards the development of hand-loom weaving.

*Q.* Then this statement is not based on exact figures or on observations?—*A.* That is the impression I gathered.

*Q.* Are there any parts of the Bombay Presidency in which hand-loom weaving is either making marked progress or the reverse?—*A.* The chief centre making progress in the Bombay Presidency is Malegaon, and about the other centres I cannot say that the same progress has been made as in that particular centre. The reason why I say that Malegaon is making progress is this: some five years ago I was sent there to try to form a weaving co-operative society. After spending several months in that place, we did form a society. After that we started demonstration on the fly-shuttle motion. We carried out demonstrations for about six months. Then we opened two weaving schools in the same town, one for the Mahomedans and the other for the Salis. The Sali weavers' weaving school was not a great success, but the Mahomedan weaving school for the better kind of weavers was a great success; in fact we had to take another building to accommodate the necessary machines and boys. In that school boys who had never earned anything command pretty good wages, say Rs. 10, and in one case one boy in particular who worked with that motion and with one arm is earning about Rs. 8 a month, though he had never done any work before. I believe that school has been closed since about 12 months ago, but I am informed that 100 fly-shuttle slays have been sent to that centre and manufactured locally since we commenced work there. That is the reason why I say that we made great progress in the Malegaon centre.

*Q.* What class of weaving is carried on in Malegaon? Is it in fine counts or coarse?—*A.* It will be about the medium, I might say 20s to 30s; not any finer except in isolated cases.

*Q.* Is there any fine weaving done by the hand-loom weavers in the Bombay Presidency?—*A.* Oh, yes, very much.

*Q.* In what centres?—*A.* The centres of fine weaving are mostly in the southern part of the Presidency such as Gadag, Hubli, Belgaum, and then in the northern part of the Presidency we have Surat and some of the districts surrounding Ahmedabad.

*Q.* Is the number of these fine weavers increasing or decreasing?—*A.* I cannot say.

*Q.* Are there any signs of decadence in the industry in this Presidency?—*A.* There are, but I do not think there will be any signs if the movement is worked on correct lines for a considerable number of years.

*Q.* Are you aware that in those parts of the Madras Presidency where hand-loom weaving is mostly carried on, for instance, Madura and Salem, the number of hand-loom weavers has increased by fully 50 per cent. in the last 50 years?—*A.* I was told so.

*Q.* Then in view of these facts would you hold to your statement that hand-loom weaving is in danger of extinction?—*A.* Yes.

*Q.* Why?—*A.* Well, what has been done in other countries will also be repeated in India. That is my opinion. If you educate the man he will certainly go in for higher kind of work. I will illustrate that by quoting Malegaon. About three months ago a Sali who had first bought a fly-shuttle slay came down to me and asked me if I could get him full particulars for a small power-loom factory in Malegaon for 10 looms. That pointed out to me clearly that they were going in for these looms. On such facts as these I have more or less based my conclusions. The hand-loom weaver may flourish now, it may be for 20 years or it may be for 30 years, but in a good number of years he will certainly be displaced by the power-loom if history repeats itself in India as it does in western countries.

*Q.* Do you know anything about hand-loom weaving in Ireland for instance?—*A.* Yes. It is used mostly in the remote districts. I might say in connection with my own part of England the hand-loom to-day is looked upon as a curiosity; you will see it in places like Lancashire placed in the museums, and people look at it to see what it is like; and hand-loom weaving, you must remember, was a great industry in Lancashire before the introduction of the power-loom.

*Q.* Do you know anything about hand-loom weaving in Belfast in the linen trade?—*A.* Not a great deal, only from what I have heard.

*Q.* Do you know that all the best work is still done in hand-loom because it is peculiarly fitted for that particular kind of trade?—*A.* There is a peculiarity in that cloth which lends itself to hand-loom weaving?

*Q.* There are similar peculiarities, aren't there, in a great deal of fine weaving in India?—*A.* Certainly, I have mentioned that in my written evidence.

*Q.* Isn't it likely that hand-loom will survive here?—*A.* In some centres where they make fine cloths and where they make solid border cloths.

*Q.* Now you recommend the establishment of demonstration factories and experimental weaving sheds: is it your opinion that there is a good deal of work to be done in experimenting with hand-loom weaving and discovering the best methods of working here?—*A.* No, not a great deal of work to be done in experimenting or discovering methods of work so much as in experimenting with different kinds of work. They are doing the same kind of patterns which were done a hundred years ago.

*Q.* You are aware that a very large number of different patterns of hand-loom have been brought out within the last few years, and attempts have been made to get the hand-loom weavers to adopt them?—*A.* Yes.

*Q.* Are you in a position to discriminate between these different patterns of hand-loom and say that one pattern is better than any other: for instance there is the Sayajee hand-loom invented in Baroda, there is the Salvation Army loom which is manufactured in Bombay, there is the Ahmednagar loom invented by Mr. Churchill, and there is the old English hand-loom which is being largely used in Madras; then you have the fly-shuttle slay attached to the pit-loom. Now between all these different types of loom, can you exactly say that you prefer one over the others?—*A.* Oh, yes, right away: I prefer the fly-shuttle attached to the pit-loom because it is the best kind of machine for the hand-loom weavers.

*Q.* Can you express any opinion as to the value of these other fancy looms which the weavers are advised to use?—*A.* I have yet to see the first loom—I will not mention any particular loom, they are all alike in my opinion—I have yet to see the first loom worked successfully by the hand loom weaver: I do not care what kind of loom it is, I am not particular: I have yet to see the first loom worked successfully by the village hand-weaver, and I am yet to see the first small factory worked successfully on commercial lines in which these supposed modern looms have been introduced.

*Q.* You don't think it is necessary to set up experimental weaving schools?—*A.* Well, experimental work need not be in relation to making looms, that is, in discovering new looms; it may be experimental work in relation to making different patterns suitable for the country.

*Q.* I will come to that point in a minute. What I want now to deal with is the simple technique of the hand-loom. You say that the frame loom as we call it, that is, the fly-shuttle slay attached to the pit-loom is good enough for all practical purposes?—*A.* I think I have said something about that in my written evidence. If these so-called improved looms are going to cost 100 to 200 rupees, then there is no reason why a man who understands weaving cannot go in for the same number of power-looms worked by oil engine: the initial cost will practically be the same. Now in our country there is no difficulty whatever in a man commencing with such a small plant as that because first there is a better co-operation amongst the employers and labour; second, he does not require any preparatory plant to make warp ready for the loom. Suppose I have a little money, and intend commencing cloth manufacture, I can go to a loom-maker and order my 20 looms. I can take part of a building, and fit it up by what we call the loom and power system; the loom and power company provide the power and the room and the tenant pays the rent for the room space. I do not require any preparatory machinery whatever. You may have been a manufacturer for a number of years, you can do my preparatory work, you will do it willingly, I will approach you, and " I will do it ", you will say, winding, warping and sizing at 2 annas per pound, I choose my yarn and ask you to send it to my workshop. In two or three years' time I expand my work, I go up and down to the cloth market in Manchester, I am getting in touch with the cloth agents. The cloth agents no doubt will like my cloth, but they will say to me, " Mr. Pomfret, I like your cloth all right, will you supply me with more?" ; you will say " I cannot do it on account of want of capital, if you will advance me money to buy more machines I can do, I am hard up and cannot encroach upon my profits ". I go on for two or three years, I expand it to 300 looms. I have now winding, warping and sizing plant of my own. That is how small manufacturers expand their business in Lancashire : in fact there is no manufacturer in the town of Nelson in Lancashire who has not been an ordinary weaver.

*Q*. Is there any possibility of introducing that system into Bombay through the co-operation of the millowners?—*A*. There will have to be better feeling amongst the employers themselves before it can be brought to a success.

*Q*. Does there exist in India at the present the class of man who would be capable of doing such work, beginning at the bottom, and gradually building up industries in this way?—*A*. There are lots of people, but they have not the necessary capital.

*Q*. Then at present we must provide a complete system of weaving and work out the organization either in villages or small towns where weaving is carried on : have we got at present a suitable system of warping and sizing?—*A*. No.

*Q*. Then we want experimental work done in that direction?—*A*. I do not think there is much required in connection with experimental work here because we in Bombay have suitable preparatory machinery for any kind of cloth up to 20s; some of the Bombay mills are working 60s with that kind of machinery. We have in our country at least four different methods of preparing yarn for the weaver, and one of the four is certainly suitable for any kind of cloth manufactured in India.

*Q*. Does that system of sizing give exactly the same results as the sizing done in the streets?—*A*. Well, I will not say it will give the same results to the satisfaction of the hand-loom weaver, but I will say it will give the same results in respect of the particular yarn used in the loom.

*Q*. Then in your opinion in the matter of helping the hand-loom weaver in this country the problem is one of organization of the weavers rather than of technical work in the trade?—*A*. A combination of organization and technical training.

*Q*. But if you want a demonstration factory put down or a school for the instruction of hand-loom weavers, are you in a position to provide an equipment which you are perfectly certain will meet all the circumstances of the case?—*A*. I think I am; I can also modify that equipment to suit the peculiarity of the cloth made in a particular locality; that will take time, you will have to educate the workers of that locality to do good work on these machines.

*Q*. Now the next point that arises is in connection with the organization of the hand-loom weaver and the hand-loom weaving trade, and you recommend the establishment of joint stock companies to supply yarn to the weavers and to take away their products and sell them : is that done to any great extent already by private dealers?—*A*. Yes.

*Q*. And is it also done by co-operative societies in the Bombay Presidency? Are you acquainted with the details of the working of these co-operative societies?—*A*. Well, a little.

*Q*. Are they successful?—*A*. Not all, but I can give you an instance of a very successful weavers' co-operative society, that is, the one at Dharwar. The co-operative society at Dharwar has been the means of getting every weaver out of his debt to the money-lender or sowcar in that district: not only that, the co-operative society buys yarn and supplies it to the weavers, and if the weaver finds any great difficulty in disposing of his cloth in the local bazaar, the co-operative society will give the weaver an advance of 75 per cent. of the cost of that cloth and the remaining 25 per cent. will be given to the weaver when the cloth is sold.

*Q*. Do many weavers belong to the society?—*A*. Approximately I will say about 100 belong to the society; I am not sure of the figure.

*Q*. Who controls the work of the society?—*A*. The whole committee, but I believe, if I may mention names, the chief worker and the chief promoter of this society has been Mr. K.—— who is the chairman of the co-operative bank.

*Q*. That is to say, the success of the society is largely due to disinterested private effort?—*A*. The success of that society has been due to the personality and individuality of that particular person more than anything else; he is taking great interest in the work of that movement.

*Q*. For the present at any rate the Dharwar society is dependent on outside efforts?—*A*. Certainly.

*Q*. Are there any signs that the weavers themselves are taking an active part in the co-operative work?—*A*. I think so in that locality.

*Q*. Do you think there will be any difficulty in getting similar men in other places to run such societies?—*A*. I always think there is great difficulty in getting such men. There is, I think, great difficulty in getting honorary workers to take such interest in the movement as to make it a thorough success. Of course, in this particular case the honorary work no doubt has been the means of working it to what it is to-day.

*Q*. Was there not a similar society at Sholapur; does it still exist?—*A*. It exists in the same way as it did 25 years ago.

*Q*. Has it been successful?—*A*. It does not work on the same lines as the Dharwar society. The weavers there are not members of the co-operative society in the same way as the weavers in Dharwar are. Perhaps you know that the society was formed in the famine years, and, if I am not mistaken, Government gave a grant of Rs. 25,000 which was the means of this particular society at Sholapur being commenced.

*Q*. Where these societies exist and where you consider that they have been successful, have they improved the economic condition of the weaver?—*A*. I am not certain of that.

*Q*. Is the weaver earning more wages?—*A*. If the weaver works the same length of time as he did before the organization was formed, he will certainly earn more wages.

*Q*. Does he work the same length of time?—*A*. I cannot say.

*Q*. Now in these weaving societies has any attempt been made to improve the technique of the weaving mechanism that they employ?—*A*. Yes: but not to any great extent.

*Q*. (1) Are they using the fly-shuttle slay at Dharwar, or (2) has the society made any attempt to introduce it?—*A*. (1) Yes. (2) No.

*Q*. Because there is the difficulty of getting suitable honorary workers your idea would be to have a number of joint stock companies for financing weavers rather than developing this system of co-operation?—*A*. The joint stock companies should be conducted or worked upon the same principle as the existing co-operative societies. The Director and his assistants would take the place of the honorary workers, and the above men should give their attention to the technical, demonstration, and experimental work at the same time.

*Q*. I understand that you have in the Victoria Jubilee Technical Institute a hand-loom weaving class now?—*A*. It is closed at the present time. It has been closed since last March.

*(Witness here gave confidential evidence as to the reason why the class was closed.)*

*Q*. In regard to the Victoria Jubilee Institute, I notice from the last report of the Institute that in June last you admitted 24 students for textile manufacture, and that in the last examination only four candidates were examined of whom three passed in the first class and one in the second. From the figures that are given in the report it appears that a very large number of the students did not go through the whole course, they dropped out by the way, is that so?—*A*. What department is that?

*Q*. I am talking of your department?—*A*. Is that the power department?

*Q*. It is marked " textile manufacturing ".—*A*. There must be some mistake there because we had more than three students, in fact we have over 30 students.

*Q*. Of the students who join your department, do the bulk of them go through the course or do they drop out?—*A*. Very few drop out. I do not think on the average more than 10 per cent. of any department drop out in a year.

*Q*. Your course differs from the other courses in the Institute; it is a two years' course instead of four?—*A*. Two years weaving and two years spinning, and should the student desire to take weaving after he has passed through spinning, he can do so.

*Q*. Do many do that?—*A*. More take up weaving after they have passed through spinning than those who take up spinning after they have passed through weaving.

*Q*. Do many do that, or do the majority of them finish with one course?—*A*. I may say 40 per cent. of them will take a four years' course, 40 to 50 per cent. of the second-year students.

*Q.* What percentage of the first-year students are the second-year students? If 24 were admitted in last June as it is given in the report, how many of them will continue till their second year?—*A.* Twenty at least.

*President.*—*Q.* How many will go to the final examination?—*A.* Except for sickness or anything of that kind, I think 20 will go for the final examination at the end of two years.

*Q.* There are 24 who passed the examination on the 21st June in textile manufacture?—*A.* That is the entrance examination you are referring to by 24.

*Q.* Then the final examination was held in February?—*A.* Yes.

*Q.* That final examination represented the students who entered two years before?—*A.* Yes, that is right.

*Q.* The report says that at the final examination for textile manufacture three passed in the first class and one in the second class?—*A.* That is the result of the fourth year examination, that is, of the students who changed over from one department to the other; it is not the result of the second year's examination.

*Q.* Then your course is not completed in two years?—*A.* It is in weaving and spinning.

*Q.* But not in textile manufacture?—*A.* No.

*Q.* How many students enter with the intention of completing the course? Of the 24 who passed the entrance examination this year how many do you think would be likely to go for the full course of textile manufacture?—*A.* There may be 10.

*Q.* And this 10 is included in the 20 referred to?—*A.* Yes.

*Q.* The other 10 will drop off after the second year?—*A.* Yes, after the examination at the end of the second year.

*Q.* What is the examination that they pass at the end of the second year? Is it followed by a certificate of any kind?—*A.* Yes, first class or second class.

*Q.* Regarding the results of the second year examinations I notice that in 1912-13 16 passed, in 1913-14 there were 19, in 1914-15 they dropped to 9, and in the following year they were 9, and this year they have been reduced to 4?—*A.* Yes, that is in relation to the fourth year examination, that is, those passed in the fourth year examination.

*Q.* Why is it that the numbers were going down?—*A.* Well, I expect the students find out after they have been through weaving or spinning that they can get employment. There is a demand for our students. Of course, that is my private opinion. We have therefore made it a four years' course, the first two being devoted to weaving and the second two years to spinning; some are doing spinning and some weaving.

*Q.* At the end of the second year some pass out as having qualified in spinning, and some as having qualified in weaving, and only a smaller number remain to pass out at the end of 4 years qualified in both?—*A.* Yes, that is so.

*Q.* What kind of certificate do you give at the end of the second year?—*A.* The certificates state that the student has passed the second year examination in weaving, first class or second class in weaving or spinning. Those who complete the full course of 4 years get a diploma certificate, the second year men get simply what we call a certificate.

*Mr. A. Chatterton.*—*Q.* Of the students that go through your department, do any of them take to hand-loom weaving, or do they all go in for factories or mills?—*A.* There is a demand for our students; our students at the present time get in some of the mills in Bombay and in Sholapur not less than 60 or 70 rupees a month.

*Q.* Would your students be suitable to take control of co-operative societies in the initial stages in the event of there not being satisfactory honorary workers to organize them?—*A.* Yes, if that movement would make it worth their while to take up that work, but there is not much chance of promotion in that movement. In a mill for a student who works with his sleeves up, there is chance of his getting up to Rs. 300 or Rs. 400; we have passed students at the present time receiving that pay. There is no chance like that in the co-operative movement. If he commences on Rs. 25 he has great difficulty in getting 5 rupees more per month after two years' service; moreover, he is frequently transferred and has no chance of finishing any good work that he undertook at one place, whereas in a mill if he shows good work he is promoted immediately.

*Q.* Do you think the co-operative movement would be much more successful if the Registrar of Co-operative Societies was able to employ on his own selection a sufficient number of these trained students?—*A.* It is not likely that the Registrar of Co-operative Societies will have a sufficient knowledge of this work and the efficiency of the passed students to make a good selection. A far better selection would be made by men of experience in this work.

*Q.* Do you think that is the most important factor towards making it successful?—*A.* It is a most important factor to get our students to take up that work because in the power department we have hand-looms and the students receive training in hand-looms as well as in power-looms.

*Q.* How many weavers would in your opinion form a suitable economic unit for the purpose of a co-operative society?—*A.* I would certainly recommend a small number at the beginning: I prefer a society of 40 members rather than 100 members because it is easier to manage.

*Q.* Then for a considerable time Government will have to supply the necessary funds?—*A.* It is so.

*Q.* Would it be practicable to work up these co-operative societies to 400 weavers later on?—*A.* When it is self-supporting I should think it would be a good thing to take 300 to 400 weavers, but until the weavers have received better education than they possess at the present time, they will not be able to control such a large society.

*Q.* You have, I suppose, a great deal of experience of hand-loom weavers: do any of them send their children to school?—*A.* They will not do so unless they are compelled. Voluntarily you will very seldom see the son of a weaver go into a primary school.

*Q.* I notice in the addendum to your evidence that you have put in, you advocate some system of education of weavers, and you want it to be some form of manual training rather than literary: how are you going to get teachers at the present time for these schools?—*A.* We must train the teachers.

*Q.* Does there exist any class of men capable of being trained to give manual training?—*A.* If you give sufficient inducement, you will get teachers, but if you pay the primary teacher 10 rupees a month, how can you expect to get a good teacher to take up primary work and manual work with the present chances of promotion to higher pay?

*Q.* I suppose you recognize that this manual training is very difficult to impart satisfactorily?—*A.* Not if the teacher is paid suitably. It is a most interesting subject and it is also the easiest. But how can you expect to get a good teacher on Rs. 10 a month?

*Q.* Is it any use recommending a system which it is impracticable to carry out?—*A.* It is not impracticable.

*Q.* You do not mention these difficulties in your note. Would not the expense be greater than the Government could afford at the present time?—*A* Well, of course, if you look at that in that way, and if you are going to wait until you have money, it will never be done: as very little is attempted in India except it is made compulsory.

*Q.* What do you think are the practical steps which are immediately possible if funds were available to improve the position of the hand-loom weaver?—*A.* I should certainly say a central weaving factory in some important part of the Bombay Presidency.

*Q.* Run by Government?—*A.* Yes, with Government aid. And in the various districts round about that central weaving factory I would have small feeder schools, so that the children of that locality will not have to go to the central factory, a distance of 10 or 20 miles. The central factory need not carry out any experiments in connection with machinery to any great extent except in the case of machinery which may have to be modified to suit the peculiarities of the cloth made in that locality. Then I consider that demonstrations should follow and it should be carried out on a large scale and there should be no time stated.

*Q.* For how long should there be a demonstration in a given place?—*A.* The demonstrators ought to remain in that place until they have found out that the weavers in that locality can work whatever has been demonstrated there independently of the others. That is what I would suggest as the practical way of improving the present lot of hand-loom weavers.

*Q.* Now do you consider that it would be better to have one fully equipped central factory on a large scale for all India rather than a number of small ones scattered about in the Presidency?—*A.* I do not think so. I am of the opinion that there should be at least one large central factory in each province.

*Q.* Do you think that these central weaving factories can be managed so as to pay this way?—*A.* I do not think so. You will never be able to earn any profit because education will never make a profit. These are more or less educational institutions.

*Q.* You have your local weaving schools, you have your central weaving factory, and I presume a boy after finishing his training in the feeder school will go to the central factory for further training: what would become of him afterwards?—*A.* The boy will have earned a sufficient amount to start a loom of his own. For instance, suppose a very poor boy has passed through the feeder school and from the feeder school to the central factory and has passed from the central factory with a high certificate, he should have in the period of training earned sufficient money from the cloth made to start with a loom of his own, and if there is no co-operative society in the district, this central weaving factory should supply that boy with yarn and take the cloth from him and give him the difference between the cost of the yarn and the selling price of the cloth.

*Q*. But would these trained weavers from your central weaving factory ever become master weavers and establish themselves independently?—*A*. It all depends on the development of the industry. If he is a bright boy, he would leave the hand-loom and take up power-loom in which there is ultimately more scope for his abilities. It is only natural for him to do so.

*Q*. Suppose we think it possible to suggest a policy, one alternative would seem to be to develop co-operative societies and pay the organizers of these co-operative societies sufficient salaries to induce suitable men to take them up: the other would involve the establishment of central factories, and the encouragement of trained weavers to go out and set up as individual master weavers: which system do you think is most likely to be adapted to the requirements of the country—working co-operatively or working on exactly opposite lines?—*A*. I should say the two systems should be adopted in this country.

*Q*. Working side by side?—*A*. Yes. One is not much good without the other.

*Q*. If you put a well-trained weaver with a certain amount of initiative of his own into a co-operative society, would he develop the co-operative society?—*A*. Here and there you will come across an Indian who is sufficiently interested in his country to develop a co-operative society, and work it successfully, but many others will serve their own interests; such men will never make any movement a success. The difficulty is to get hold of the right stamp of men for this work, then it will succeed.

*Q*. He will have his own interests to serve as well as the society's—*A*. I do not think so: but unless that is so, co-operative societies or anything of the kind, in connection with weaving will never be a great success. The personality and the individuality of the man in charge of a movement like this means success or otherwise, and unless that man is going to take an interest in the co-operative society in which he is employed, it will never be a success.

*Q*. Do you think that a weaver who is an intelligent skilled craftsman, and has a certain amount of capacity, will continue to work for any length of time as an individual in a co-operative society?—*A*. I do not think he will.

*Q*. Is there not a likelihood of his drawing men away from the co-operative society by inducements of better pay?—*A*. I do not think because the average men under the co-operative society will not be fit to go into the same sphere of work as the other man has gone to.

*Q*. Then you will have the co-operative society composed of ordinary weavers alongside factories in which you will have the better class of weavers?—*A*. I do not agree. In the co-operative society you have skilled workmen as well as ordinary workmen to balance the staff. But in that society you will certainly have a number of leaders just as takes place in other countries also, men who will be able to do whatever kind of work you give; such men will certainly not like to work in a co-operative society, and will take up a better paid position.

*Q*. So the success of the co-operative movement, so far as it has gone in regard to weaving societies, is due to the dominance of outside disinterested persons?—*A*. Yes, that is so.

*Q*. And the weavers have confidence in those persons?—*A*. Yes.

*Q*. That is a weak side of the movement?—*A*. Yes.

*Sir F. H. Stewart*.—*Q*. In your opinion the better class of weavers are bound to go to the power-loom ultimately?—*A*. Yes, and my reasons for saying so is this: when we teach a man to read and write and to draw, and thus open his mind, that man can express his ideas on paper to people much better, he gets acquainted with different things in life and if he has made up his mind to make progress and if he intends to meet competition, he will certainly change his method of work, and that method of work will be from hand to power-looms.

*Q*. You lay great stress on the importance of instructors being practical men. Who carried out the instruction in the Malegaon factory which you say is successful,—*A*. We had an assistant: of course, that was in the early stages of this movement, about eight years ago.

*Q*. Was he an Indian?—*A*. He was an Indian.

*Q*. Have you got more of them?—*A*. There will be no difficulty at all in getting a number of them if the pay is all right.

*Q*. And they would be the people whom you would send round for demonstrations?—*A*. Certainly. That man who had left our institute would be a supervisor of four or five demonstrations, and he would have under him at each demonstration factory a practical weaver.

*Q*. What pay would that man get?—*A*. About 35 or 30 rupees a month.

*Q*. Not more?—*A*. That is what we pay at Dharwar.

*Q*. That is for the weavers; what would be the pay of the supervisor?—*A*. He was paid as near as I can tell you Rs. 70 or 75 a month.

*Q*. What you want a very large number of these supervisors?—*A*. Of course, that would depend on the number of demonstrations. One supervisor should be able to control at least four; so if we have twelve demonstrations working in different parts of the Presidency at the same time, then three or four supervisors will be quite sufficient.

*Q*. The old-fashion looms which you recommend are about half the cost of the English fly-shuttle loom?—*A*. That will depend on the price of the wood; I should say we have made them in our institute for people at a cost price of Rs. 35. Of course, if they desire a strong frame loom, then the price may go up to Rs. 80; but the simple fly-shuttle slay attachment we have made for 7 or 8 rupees, and in fact we could make them at Rs. 6 a slay.

*Q*. Have you any of these demonstrations going round now?—*A*. There are several demonstrations going round at the present time.

*Q*. Why are the children of the weavers not sent to school now?—*A*. That little boy who is winding or filling bobbins for his mother is earning something for the family; if you take this child away from home and send him to school, then you must do something for the parents of the child.

*Q*. These weavers are almost entirely quite uneducated?—*A*. Quite uneducated.

*Q*. You make certain proposals with regard to the formation of joint stock companies, and also the granting of certificates in your supplementary evidence: Are not the weavers too uneducated to respond to any movement of that sort at all?—*A*. They would respond, I think, in time. Of course, the movement will be slow in developing itself, but they will respond in time especially if they were compelled to. If you wait until the Indian child is sent by the parents to school, that day will never be.

*Mr. C. E. Low.*—*Q*. Can the various fly-shuttle looms which you use in this Presidency, for instance at Malegaon be made locally?—*A*. Yes, there are carpenters in the Presidency who make such looms: in fact any joiner can make the loom without the least difficulty.

*Q*. What about the iron parts?—*A*. There are very few iron parts in such loom. It is a wooden loom, but in the loom for finer cloths there are a few iron parts, but these iron parts are of sufficient strength not to get out of order.

*Q*. There are certain difficulties in some parts of India felt by weavers in consequence of famine when there is very little demand for finer cloth: have any co-operative societies got over that difficulty.—*A*. That difficulty is due to want of funds: they will have to build up a reserve for the purchase of yarn.

*Q*. Now another difficulty in the management of these weaving societies is this; there is, of course, an obvious advantage in purchasing yarn for the weavers, but when you get away from the ordinary financing agency, who would buy cloth from and sell yarn to the weaver? Do you think the co-operative society is to manage that?—*A*. There must be joint stock companies to manage that. I think I already said that. That joint stock company would have under it several weavers' unions and would direct all this kind of work; get orders for cloths, purchase yarn for these orders from local spinners or from yarn merchants. The order for cloth may be for six months, the weavers to give the manufactured cloth to the joint stock company and the joint stock company to pay the weaver a wage similar to what the power-loom weavers are paid in Bombay to-day, and be responsible for the disposal of that cloth.

*Q*. It is precisely in those classes of cloth which are most unlikely to be displaced by power-looms that there is a promising field for the hand-loom weavers?—*A*. Yes, that is so.

*Q*. But they are the most difficult to finance: do you find that the co-operative societies, the ordinary co-operative central banks or district banks whatever they call here, are willing to advance to co-operative weavers societies large sums of money so that they may hold cloth for a long period?—*A*. Before a co-operative central bank makes an advance to a weaver it has to be sanctioned by the Registrar of Co-operative Societies.

*Q*. But the mere fact that the Registrar is prepared to sanction does not make it necessary that the directors should agree?—*A*. Well, I do not know whether the central banks or any of the district banks here have got large sums of money to finance cloth for a long period.

*Q.* Do you find in practice that the power-loom mills are ready to make small lengths of warps?—*A.* I do not think any mill in Bombay would care to make odd lengths for the hand-loom weavers.

*Q.* Do you think there will be any scope for a small special plant of factory for that?—*A.* Yes, great scope: that would be a paying concern, but you want a first class man in charge of that to make it a success.

*Q.* Take this Dharwar society; how much money do you want to finance that, for buying the yarn and selling the cloth, and for holding it also for a certain period?—*A.* I should say Rs. 25 a member, 25 to 30 rupees a member.

*Q.* Do you think that they vary according to the kind of manufacture in that locality?—*A.* If they make silk cloth then they will require more; if they make ordinary saris which are sometimes made in power-looms, they will require less.

*Q.* But in your experience for these seasonal sales they require more?—*A.* They require very large sums. As a matter of fact there is not very much risk in holding and selling their cloth if properly managed.

*Q.* This weaving demonstration staff in Bombay, whom do they work under?—*A.* Under the Registrar of Co-operative Societies.

*Q.* Has he any expert assistance?—*A.* Yes.

*Q.* Does he take your advice on technical points?—*A.* At times.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* How much cloth are they producing in the Malegaon co-operative society per year?—*A.* Well, it will be much better if I can give you per day.

*Q.* What is the length of a sari?—*A.* About 8 yards. I do not think the average production would exceed 10 yards.

*Q.* Are they purchasing their yarn from mills in Bombay?—*A.* From cotton mills and merchants in Bombay.

*Q.* Do you know what an average power-loom worker gets here per month?—*A.* That varies according to the class of work that the weaver is engaged in.

*Q.* But generally?—*A.* 30 to 35 rupees.

*Q.* Then about these technical schools, do you think it is feasible for the mills in Bombay to start schools to teach the sons of their operatives just like the school we saw in Madras? Have you seen that school?—*A.* I have seen one in Sholapur mills.

*Q.* What does it cost?—*A.* Pay and wages Rs. 400 a month, and the equipment about Rs. 2,000.

*Q.* Do you think if the factories start such small schools for their own men, it will make the men more skilful?—*A.* I do not think that is the best method because in many mills you will then have duplication of work, whereas if you had one technical workshop for several mills you will save money in equipment and also in staff. What I mean is instead of importing skilled labourers, you should try in your mills to train Indians as practical men with some degreee of efficiency, and you can only do that by giving them training which they cannot obtain in the mills by a special course suitable to these men.

*Q.* What about text-books, should they be specially prepared?—*A.* It would be an advantage if they were specially prepared for Indian textile operatives, but the instructor should not give the lessons from the book, but from experience, a text-book is for reference. Of course, it would be much better to teach generally in English at the beginning.

*Q.* Are there many assistant weaving masters and assistant spinning masters who understand English?—*A.* Not in large numbers.

*Q.* Then the training will have to be generally in the vernacular?—*A.* I think the proper training will be in the vernacular.

*Mr. C. E. Low.*—*Q.* Have you ever heard of a case in Bombay where a mill was started by a master weaver?—*A.* A master weaver is a person who has had practical experience of the different departments in weaving. There may be one or two exceptions in Bombay of so-called men having started a mill.

*Q.* We have had evidence before us from more than one province that the standard of machine efficiency in Bombay is low: do you think these two facts are co-related to any extent?—*A.* Yes, the standard of machine efficiency throughout India is very low, and it is not likely to be improved until the employers take greater interest in the workers, and give promotion by merit and efficiency. Promotion in pay is given to the men who can take the most labour to the mill. The efficient jobber has no chance of promotion except he has a large number of weavers he can take from one mill to another in the same district.

## WITNESS No. 329.

MR. A. E. MIRAMS, F.S.I., F.S.A., F.R.SAN.I., M.T.P.I., &c., *Consulting Surveyor to the Government of Bombay.*

### WRITTEN EVIDENCE.

"*Industrial Employees—their improvement of vital consequence if the development of Industry is to be advanced.*"

In treating of this subject I desire to confine myself to matters germane to the improvement of the conditions of the industrial classes in this country, which connotes improvement to Industry; and to make suggestions. The improvement of the employee for his own sake would, I apprehend, hardly be considered as a subject coming within the terms of reference of this Commission, and although a fascinating and highly important topic must consequently be left with this remark.

In the first place I desire to disclaim any intention of discussing or criticizing the action or inaction of employer or employee in connection with the actual work of the factory or the workshop. I am not qualified to express an opinion on this branch of the subject, even if it were thought desirable for me so to do.

I make no apology for bringing the question of factory employees before the Commission, because I am profoundly convinced that the improvement of industry is so bound up and intertwined with the improvement of labour that the two things are inseparable; and an enquiry having as its objective the improvement of industry would be hopelessly incomplete without hearing evidence on the conditions of labour, in the absence of which Industry would cease to exist.

Details of general housing which may be considered as immaterial to the present issue may acquire accidental significance if I unduly dwell on them, and I have attempted to eliminate as far as possible questions and facts which, whilst having a direct bearing on "housing" generally, yet do not directly influence the housing of the industrial classes. The term "industrial classes" is so comprehensive however and the subject is of such vast importance that it is very difficult indeed to draw the line, and I realize I must claim the indulgence of the Commission if it is felt that I have sometimes taken a rather wide survey. On the other hand, I consider that I ought not to weary the Commission with evidence of great length and this has resulted in my treating some of the points in rather a cursory manner.

Industry calls for vigorous workers and my proposals aim at the re-vitalizing of the industrial and factory populations of our towns. I ask myself, as I have asked employers—"Have employers sufficiently realized their responsibilities in this direction? Have they taken heed that the offspring of the workers—the embryo worker of tomorrow—shall be well born and sturdy?"

If industrialism is at basis a means of providing sustenance for the people, the system should provide for a natural and healthy environment. All Factory Laws, to a limited extent, safeguard the lives of the employees whilst actually in the factory, but something more is required than the mere prevention of accidents. A something which it is difficult to legislate for.

Obviously most of the implements of manufacture, at any rate in our large towns, are now the property of the rich, and the labourers, who work the machines, are but too often part of the machinery. The lot of the plebeians of today is in some respects rather worse than that of the slaves of former times. Slave ownership had its responsibilities, and the better type of master used to show a kind of patriarchal benevolence towards his vassals, which is sadly missing in modern times.

I make this statement after having lived for three years in a country where slavery was customary.

A certain section of employers have unfortunately under-estimated the somewhat tangled ramifications of the labour problem. A country might be rich in minerals and soil and natural products, but unless it was rich in men, in its working classes, in men of good stamina and physique, there was an essential ingredient of the country's wealth which was missing. It is India's duty to see that its working class population is brought to its highest state of proficiency and this can only be done by seeing that it is given a proper physical, moral, educational and social environment. A few wise employers have already appreciated this, but they are *very* few.

With a view to there being a proper recognition of the need that exists and an enlightened view of the methods which should be employed to meet that need, and to be in a position to review the subject in a comprehensive manner, I have enlisted the co-operation of a large number of factory owners throughout India, and have taken the opportunity of discussing the matter in many of its aspects with big organizers of industry in different centres. I am indebted to the Factory Inspectors of the Bombay Presidency, Central Provinces, United Provinces, Madras, Burma, Bengal, Behar, Orissa and Assam for help rendered—they kindly undertook to issue circular letters to most of the owners of large factories in their respective districts.

A copy of the circular letter and attached questions accompanies this memorandum (Appendix A). I personally sent a similar letter and questions to every factory owner in the Bombay Presidency and Sind to the number of 737. The copies issued through the aforementioned Factory Inspectors in other parts of India number 165, making a total in all of 902.

It is only fairly satisfactory to be able to report that of the number issued to the owners in the Bombay Presidency 352 replies have been received, being equivalent to 47·7 per cent., and of the number issued to the owners in rest of the Provinces and Presidencies, 98 have been received or an equivalent of 59·3 per cent., making a total of 450, being an equivalent of 49·9 per cent., of total number issued.

But the result is not altogether disappointing when it is remembered that the number of owners approached was not inconsiderable and that some of them are little used to statistical enquiries, and further that the return of the completed list was purely voluntary. In some cases, I imagine, and especially in the case of those who had made no housing provision, that the return was withheld as the result of an apprehension that legislative action might be taken to enforce them to do something in that direction. In other cases I fear that want of interest was the cause, and this is the most deplorable reason of all and would indicate a want of appreciation of the fact that the enquiry was as much in the interest of the owner as the employee. On the other hand, the owners of many of the 462 ginning factories might reasonably have considered that particulars from them would be of little interest, inasmuch as their work was purely seasonal.

The total number of factory employees as compiled from the annual reports of the Inspectors of Bombay, Bengal, Behar, Orissa and Assam, Burma, Central Provinces and Berar, Madras, and the United Provinces, is seen to be 9,56,708. The employees accounted for in the returns received number 5,03,289, or an equivalent of 52·5 per cent., of the whole.

The distribution of the total number of factories and employees for the year 1915 is as follows :—

| | Factories. | | | Employees. | | | |
|---|---|---|---|---|---|---|---|
| | Perennial. | Seasonal. | Total. | Men. | Women. | Children. | Total. |
| 1. Bombay .. | 320 | 466 | 786 | 2,10,822 | 53,110 | 16,634 | 2,80,566 |
| 2. Bengal, Behar, Orissa and Assam .. | 322 | 125 | 447 | 3,29,610 | 50,573 | 32,072 | 4,12,255 |
| 3. Burma .. | 480* | | 480 | 62,134 | 3,601 | 617 | 66,352 |
| 4 C. P. and Berar .. | 450* | | 450 | 29,633 | 16,605 | 2,608 | 48,846 |
| 5. Madras .. | 284 | 133 | 417 | 64,746 | 13,591 | 6,082 | 84,419 |
| 6. United Provinces .. | 79 | 142 | 221 | 55,336 | 6,963 | 1,971 | 64,270 |
| Total .. | 1,005<br>930* | 866 | 2,801 | 7,52,281 | 1,44,443 | 59,984 | 9,56,708 |

When referring to these figures it must be remembered that they are only in respect of factories and industrial concerns employing 50 or more persons, and take no cognizance of the large number who find their employment in industrial establishments not sufficiently large to be classed as factories. The latter class is the more difficult to legislate for, as it is spread over comparatively large areas with resulting lack of opportunity for co-operative or collective action. The improvement of their position as workers is a subject for a detailed and exhaustive enquiry. An enquiry which I have not attempted, but one nevertheless which I think should be undertaken by the responsible authorities without loss of time. By this I mean an enquiry on the lines of the Royal Commission appointed to enquire into the housing of the working classes in England, which issued its report in 1885. My investigations were undertaken with the definite object of throwing light on the problem of industrial labour as it exists today in India.

Inasmuch as any improvement of the part must have an influence on the whole, then by offering suggestions in connection with the factory employees, I indirectly make proposals for improving the lot of the industrial classes but I am unable to go much further in the latter direction in this note.

---

* Not classified.

In the course of my enquiries I have discussed the question of labour and its improvement with members of the Chamber of Commerce, of the Mill Owners' Association, mill and factory owners, mill foremen, and factory employees. By the courtesy of a number of owners of factories I have been able to visit the labourers themselves at their work, and have had them questioned with a view to probing the matter to the bottom. A series of questions (*vide* Appendix D) has been put to them after their confidence had been gained, as to their economic condition, where they live, how they live, what rent they pay, how much money they owe, and so on.

In Appendix M, I give a summary and an analysis of the answers of 100 employees in Bombay and a similar number in Ahmedabad, which are profoundly interesting to the earnest seeker after the truth. Entering upon the enquiry with an open mind, it did not take me long to discover what was at the root of the whole question, and it was encouraging to find that the weight of opinion was decidedly in favour of certain definite and fundamental remedies which I propose to refer to in the course of this memorandum connected with improved environment.

**Housing.**

Although I have observed a good deal of poverty in my walk through life and in many countries, and although I had read a great deal about poverty, I confess I did not realize its poignancy and its utter wretchedness until I came to inspect the so-called homes of the poorer working classes of the town of Bombay.

In the warm and bright climate of India, less food, less clothing, less shelter are needed than in Western countries, and one has less cause to feel sorry for the tattered wretch who sleeps with careless ease in the main roads of our great city, but see him in his home amongst his family, and one instinctively asks oneself, is this a human being or am I conjuring up some imaginary creature without a soul from the underworld? Some of the children outlive the dire psychic and moral consequences of the depraved and wretched condition of their earlier years, but very few; how they do it is a mystery: most never attain a robust manhood or womanhood.

Almost any quarter of the bazar will furnish examples of the places we call the homes of the people, the celebrated chawl; the origin of the word I do not know, but it has come to have a special significance as indicating a tenement structure which has been especially constructed for and occupied by the poorer classes. Many of these chawls are huge houses of from 3 to 5 floors with anything from 10 to 40 or more rooms. Each floor has a verandah running along its whole front or an interior corridor. On the ground floor facing the road are often to be found small shops with narrow frontages and shallow depths, the tenants of which pay high rents and sell anything from *pán* and *biddis* to furniture and curios according to the district in which they are situate. Behind the shops are rooms, frequently very dark, which may be occupied by the tenants of the shop or not. The access to the upper floors is by means of a very narrow and steep staircase. Glancing into the rooms as one walks along the verandah, hanging on the outside of which a miscellaneous assortment of wearing apparel is almost always to be seen, the visitor might be excused for thinking them sparsely inhabited, but a closer inspection may reveal, sitting on the floor, a mother and 2 or 3 children, the father and as often as not some of the family relations and a lodger. In the evening this is not at all an uncommon sight, especially if it is meal time.

In such a room, which under the Bombay by-laws must be 100 square feet in area (10 feet ×10 feet would thus satisfy the requirements), where there is hardly space to move, whole families sleep, breed, cook their food with the aid of pungent cow-dung cakes, and perform all the functions of family life; the common latrines alone being set apart. Some of the rooms so called, in the upper stories of the older houses, are often nothing more than holes beneath the sloping roof, in which a man cannot stand upright. The rear rooms are usually dark and gloomy in the extreme and it is only on a closer inspection when one's eyes have become accustomed to the gloom that the occupants can be seen at all.

This is truly a distressing state of affairs, and those who know the conditions will agree, is not in the slightest degree over-coloured. It is to this environment that the would-be factory employee is introduced on his arrival in Bombay from his home in the Konkan. Charles Dickens said :—

"I have systematically tried to turn fiction to the good account of showing the preventable wretchedness and misery in which the masses of the people dwell, and of expressing again and again the conviction, founded upon observation, that the reform of the habitations must precede all other reforms, and that without it all other reforms must fail."

All the civilized nations today recognize the truth of what the great student of humanity wrote a generation ago. In Bombay the Municipality in the past has done something to improve these chawls by compelling owners to cut chowks through the buildings to give increased light and air to the interior rooms, but unfortunately of recent years they have abandoned this policy. However plans of new buildings are carefully scrutinized by the Municipal Engineer with the object of enforcing the existing regulations as to light and air, but the powers behind him are by no means sufficient, and new buildings are being erected today, which he knows are not sanitary and yet he cannot refuse to pass the plans, because they comply with the by-laws. The Bombay Improvement Trust have erected chawls of one-room tenements of 2 and 3 floors but still they are chawls (see plans, Bombay Improvement Trust Chawls), and what is more, the rent which the Trust expect to obtain from them is much in excess of what the ordinary factory hand can afford to pay. In this connection it is interesting to record that a well known mill owner has just made proposals to the Improvement Trust to take over three or more blocks of their chawls at their full rent and let them out to the employees of his mills at a reduction of rent of about 40 per cent. The loss in rents will be borne by his mills and is equivalent to an increase of the wages bill by an amount equal to the loss.

As I have remarked in another part of this memorandum, the loss will only be a loss in name. In effect it will, I am convinced, be a distinct gain to the mill. The gentleman who made this offer is a shrewd businessman and knows quite well that it is a business proposition.

In Appendix J, I have shown what the Bombay Improvement Trust have done in the way of providing housing accommodation for the working classes, and from Appendix K it will be seen that the rents per room varies from Rs. 3-4-0 to Rs. 5 per month. The Trust are confronted with the question as to how far it would be right for them to incur loss on schemes which provide for better housing of the poorer classes near the places in which they are employed. Personally I have no doubts on the subject at all, in spite of the objection raised by economists that this would practically amount to subsidizing employers out of public funds. If this argument was carried to its logical conclusion, then no public authority is justified in spending money which benefits the individual at the expense of the public, an impossible state of affairs.

I must not be understood as desiring to absolve the employer from his share of the burden however. It seems perfectly clear that if a certain factory has attracted to it a large number of persons by whose efforts the factory is maintained, that the owner of the factory has a responsibility thrown upon him of seeing that the people he employs are able to exist, at any rate as human beings.

Considering the question apart from the benefits of good housing accruing to the factory, which as I have indicated elsewhere are very considerable, it seems clear that a duty lies at the door of the employer as well as the local authority—a duty which should be performed in a spirit of co-operation.

The theory is of course precisely the same in the case of the small employer, but the degree of his responsibility is very much less, whereas in the multiplicity of small employers the local authorities' burden becomes the greater. This has now been recognized in most civilized countries in the world, with the result that the housing of the working classes has rightly come to be considered a subject of national importance.

The most profitable investment of capital is generally that which looks for its reward years ahead and it is this aspect of the labour question which the employer should be encouraged to consider.

The greatest asset of a factory, as with a country, is a virile and contented worker. This has been but too little understood in this country, and the great hope for India is that the employers of labour, as well as the civic authorities, will soon be brought to realize that their position as industrial forces will be governed by their attitude towards the improvement of the environment of the labouring classes.

Strong, healthy and happy workers in our large towns, we shall never have, until the land in their neighbourhood is measured out in a more generous scale for the homes of the people. They require, as a necessity of life, plenty of light, plenty of air, and sanitary accommodation in which to live, and wherever at all possible some open space which they can use for cultivation, for after all the workers of this country are the cultivators of a year or two ago, and indeed to a great extent of today. It has been truly said—" If you gave a man a garden without any interest in it he turned the garden into a desert, but if you give a man a desert which was to be his own property he would turn the desert into a garden." So I put in a plea that the man may have a piece of ground that he can use himself for growing his own produce. That will be a source of more lasting attraction and amusement to him than a flower garden. I know that such a thing is impossible in the midst of a crowded city, but here I particularly refer to factories which are not so placed.

Every cultivator knows that to produce the best bullocks, and horses, he must look after their feeding, training and shelter: why should the mass of the factory hands of this country have less thought, care and attention bestowed upon them? The individual employer probably, if he thinks of the subject at all, argues with himself that it is useless, as far as he himself is concerned, doing anything for his employee, as the latter is only a rolling stone and may next month go off to another factory. I have attempted to show that this is fallacious. Even the dog recognizes the hand that tends and feeds him; and experience shews that a well-treated servant is not desirous of leaving a good master.

Healthy and vigorous workers postulate good housing, and the provision of the latter can no longer be indefinitely postponed if this country desires to compete on equal conditions with other centres of the world's commerce. It seems to have been assumed in some quarters that what is frequently seen associated with industrialism is inseparable from it, and that poor, mean, squalid and dirty houses occupied by ill-paid and emasculated labour are inevitable.

That this is a fallacy conjured up in the imagination of those who have not seen what has been done in other countries, is obvious to those more widely travelled, but nevertheless, that the opposite is the case has yet to be adequately demonstrated in India.

I have been asked on several occasions—" What is to be done with a great deal of the present house property in the centre of Bombay ? "

The only way to improve the bad housing conditions that *exist,* is to improve the conditions that is to say, to compel the owners by legal enactment to allow no room to be occupied that is not sanitary, to keep the rooms sanitary, and to penalize overcrowding. The existing houses in the thickly populated quarters must be brought up to a satisfactory condition for residence.

I am bound to say that better means of access by road through the centres of population leading right through the suburbs will have an important bearing on the situation. Rapid access to the suburbs will be available by, I trust, express trams, and re-building in what are now insanitary areas will be encouraged by the opening out of congested quarters. In Liverpool electric trams running on sleeper tracks carry the worker in from the suburbs at 30 miles per hour. There is no reason why this should not be done in Bombay Island. Stringent application of by-laws prohibiting the use of insanitary rooms and houses will compel landlords to improve or demolish their property.

It was a very serious, if not disastrous, thing for Bombay when the G. I. P. Railway were allowed to acquire a very large area of land at Matunga, in the heart of Bombay Island, for workshops. This should never have been possible, as the railway company could easily have made equally suitable arrangements elsewhere. The very least the company, and indeed both railway companies, can do now, is to provide housing accommodation for their employees outside the island, and I strongly recommend that action be taken to enforce this being done.

The building of a model working class house is not a solution to the housing problem. The thing must proceed as an item of a settled policy.

It is clear that good intentions do not make model houses and to build successfully one requires an intimate knowledge of how the poor live and what they want and where they want it. Familiarity with the most advantageous methods of planning and the selection of a suitable locality having regard to local conditions is essential to permanent success.

Given the houses and site, even then success is not assured, for faulty management may wreck the whole enterprise. At first it will have to be on the lines of a benevolent autocracy with accent on " benevolent " and gradually co-operation may be introduced as the residents become more enlightened.

I have no faith in charity, as a remedy. But that it can play a very useful part is evidenced by Trusts like the Peabody and the Skinners in England. By all means let philanthropy do its proper part in the amelioration of bad housing conditions but it is useless relying on eleemosynary efforts for a solution of the problem.

It may not be considered as germane to this enquiry to discuss housing generally, and I do not therefore attempt to go into the question in its broader aspect but to devote my remarks as far as is possible to the housing of the working classes to the extent that it affects the industrial and factory workers. In India as in other countries private enterprise has failed to provide adequate sanitary accommodation at such a rent as the poorer employees of our mills and factories can afford to pay. The absorption of capital in the prosecution of the war, and the demands upon it, which may be expected to arise in connection with commerce directly afterwards, will, it may reasonably be anticipated, cause the rate of interest to remain at a high level for some years. Moreover, the range of investments bringing in high though non-speculative returns without entailing either anxiety or trouble to the investors have considerably increased, and are proving very attractive. It is thus difficult to see how private capital can be expected to assist in housing, when only a comparatively low return can be expected.

But the large factory and mill owners are in a different position to the ordinary building speculator. They are, at least in the big centres of the industry, finding it difficult to secure a sufficient supply of regular labour to meet their requirements, and it is clearly a business proposition on their part to do all they can to attract labour. They are in a peculiarly favourable position for providing housing for their employees ; large numbers of people daily find employment in their factories, and at present have to be content with living in squalor and filth. This is the employers' opportunity for offering inducements in the way of good housing. This will attract labour who, I am convinced, will be perfectly satisfied to settle down if reasonable facilities are offered. It may be asked : " How can a factory owner obtain an economic return from housing when the private capitalist is unable to do so ? " The reply is that a 2 per cent.

or 3 per cent. return on capital expended on housing of his employees is but a part of the profits. The other and major portion is the return derived from healthy, contented, regular and efficient workmen. I have been preaching this up and down the country during the past two or three years, and I find that the employers are beginning to realize that this is something more than the imagination of a visionary. Some of the more far-seeing mill owners in Ahmedabad have now definitely asked me to design colonies and houses on selected sites. I have done this and they are about to commence building operations. How necessary this is can be judged by a glance at the photographs of the accommodation at present used by employees reproduced in views Ahmedabad Nos. 1 to 4 attached to this memorandum. The structures depicted are of *katcha* construction, built of brick and mud masonry, with mostly unplastered bamboo battens and covered with tin sheets.

All public health officers know beyond a shadow of a doubt that the relation between overcrowding and disease is close and positive, and I am convinced that the manner in which the industrial workers live in India to-day causes, in addition to spreading tuberculosis and other diseases, lack of interest in public affairs, loss of industrial efficiency, bad training and development of children, excessive mortality, particularly among the infants and children, as well as moral and mental delinquency and deficiency, especially among the young.

If I am right, and I do not think the statement can be disputed, then it is high time that the public conscience was awakened to the need for action.

If any factory owner still has any doubts in his mind as to whether better housing will pay, then let him ask some of the employers of labour engaged in housing work, and let him learn from them some of the advantages to their industry that have resulted in what may be termed the by-products of their social enterprise. It pays and I think it is worth repeating, in the greater efficiency of the worker, in an increased interest in his work and a higher degree of skill. It pays in a greater continuity of service and consequently it means less changing of employees and resulting trouble in obtaining fresh hands. It pays in reducing the number of days lost through illness and intemperance. It stabilizes labour by reducing the occasions for strikes and labour troubles.

I am told that the people of Bombay would not be willing to embark on a housing policy. I do not believe it. I refuse to believe that the Municipality would not be ready to fall into line with other civilized communities and shoulder the burden which, to some extent at least, is theirs, and I imagine that if the position was only made clear to them that Calcutta and Madras would not be far behind.

In order that it may not be thought that I am exaggerating the results of providing good houses, etc., for employees, I give the experiences of The Pelzer Manufacturing Company, of South Carolina, U. S. A. This Company operate four mills with 1,10,000 spindles and a full complement of looms, and constitute one of the largest cotton manufacturing plants in the South. The number of employees approximated 2,800, all of whom resided in houses which are the property of the mill corporation. These cottages, of which there are about 1,000 in the place, contain an average of 4 rooms each. The main rooms are usually 16 feet square, while the back rooms measure about 14 × 16 feet. Each house is provided with a plot of ground sufficiently large for small gardens which are ornamented with flowers and shrubs. Tenants are required to keep their premises in good, clean condition, and prizes are offered by the Company for the most attractive looking cottages and gardens.

Water is supplied to employees free of charge and a large tract of meadow land is set apart for the pasturing of cows. All sanitary and street work is paid for by the Company, which spares no effort to render life in the village pleasant and attractive to its inhabitants.

The rental of the houses has been fixed at the remarkably low price of Re. 1-8-0 per room per month, or Rs. 6 for an ordinary cottage. This rate, it is stated, is barely sufficient to pay taxes and repairs and yields the Company no return whatever on the money invested. While it is true that these dwellings are far inferior in construction to those of a representative industrial community in the North, at the same time it is claimed that they are amply sufficient to meet the requirements of those who occupy them and that is the important thing.

The town of Pelzer, in which the factories are located, contains a population of about 6,000 persons, all of whom are more or less dependent for their livelihood upon the mills. The town is not incorporated, but is held as private property by the mill corporation, which owns every house and every foot of land in the place. No house ownership is allowed, the policy of the Company being one of absolute industrial control, coupled with a large regard for the general welfare of its employees. There are five churches in the place, neat and commodious in construction, which are well attended by the operatives. In the matter of providing educational facilities for its employees the Company has taken an advanced position. Two well-equipped schools, with Kindergarten Departments annexed, are maintained. These are open ten months in the year and are absolutely free to all residents of the place. There are also night classes for those whose work prevents their attending the day sessions. As a condition of obtaining employment in the mills, parents are required to sign an agreement in which this clause is inserted : "I do agree that all children, members of my family, between the ages of 5 and 12 years, shall enter the school maintained by said Company at Pelzer, and shall attend school every day during the school session, unless prevented by sickness or other unavoidable causes." In addition to this each child who attends school a month without absence receives a prize of five annas. About Rs. 150 a month is thus expended. When it is remembered that there is no compulsory school law in South Carolina, and that the length of the public school term is not more than four months per year, the comparative educational advantages offered at Pelzer appear very great. As an evidence of the great good being accomplished by these schools, it may be said that when they were first started probably 75 per cent. of the adult population of the place could not read or write. Now this percentage has been reduced to 15 or 20, and the illiterates are chiefly new comers from the rural districts nearby. About Rs. 15,000 is expended annually by the Company in the maintenance of the schools.

The corporation has also established a circulating library containing 6,000 volumes of approved standard literature. This library is installed in a building known as "The Lyceum," which is fitted up in a very tasteful and attractive manner. The main apartment of the building has been set aside as a reading room for women and in addition to the books contains about 25 of the leading newspapers and periodicals. Another room is reserved for the use of men, while a third room is furnished with tables and other facilities for carrying on social games. The library is open every evening from 6 o'clock until half past 10 and all day on Sunday. No charge whatever is made for its use. The Company also provides a course of free lectures on history and travel accompanied by stereopticon illustrations, which has proved of great educational value. Athletics and outdoor sports are given special encouragement. The employees have organized several baseball teams which have been uniformed and otherwise aided by the Company. A fine bicycle race track is kept up, upon which the members (all employees) give exhibitions of fancy riding and compete for prizes offered by the Company. The Smyth Rifles, so named in honour of the president of the corporation, possesses the distinction of being the only military organization in any of the South Carolina mills. This Company is composed entirely of young men operatives and is a part of the regular State Militia. There is also a brass band fully equipped with fine instruments and numbering 36 members which constitutes the band of the regiment to which the Company belongs. These organizations participate in the annual encampment of the State forces and are assisted by the corporation in all necessary ways.

A saving bank is conducted by officers of the Company, in which employees are encouraged to deposit their surplus earnings, receiving interest thereon at the rate of 1 per cent. per quarter.

In thus making provision for the well-being and happiness of their employees, the officers of the Pelzer Manufacturing Company believe that they are putting their capital where it will yield them the very best returns possible, at the same time fulfilling the duty incumbent upon them as employers to assist their working people to better things by supplying them with such means of the betterment of their condition as they could not otherwise enjoy. As a result of this policy the most friendly relations exist between the Company and its employees, no labour difficulties having occurred in the factory since its establishment in 1881.

This is a fine record and many similar could be quoted from different countries, so that I am not suggesting a "leap in the dark."

Assuming that I have made out a case for the provision of housing for the industrial classes, the next question is : How is it to be done ? There is no difficulty in providing nice houses for people who can afford to pay the price, but it is a difficult matter when it comes to housing the factory employees in congenial surroundings, with good cottages within easy reach of the factory, at rents which the employee can afford to pay, in conditions conducive to mental, moral and physical development. If the magnitude of the subject is properly understood there should be no difficulty in making experiments. I have already indicated my objection to the normal type of Bombay four-storied chawl : anything more hideous or more undesirable for the rearing of a family it would be difficult to find. The most that can be said of even the most modern type is that it is better than the slums it has helped to replace. I have a strong predilection forced on me by the logic of circumstances that the simple, plain type of cottage of ground-floor, or at most two-storey construction is what is required to meet modern requirements. The cost of building materials has gone up enormously, and while wages remain as they are, it is useless attempting any construction which will not allow of sanitary accommodation being let at a monthly rent of between Rs. 2 and Rs. 3. This means the coat must be cut according to the cloth and only the plainest materials used. The actual material will vary in different parts of India. In Ahmedabad, I have just prepared a design for rows of 6 cottages, each row costing rather less than Rs. 3,000. Each cottage has two rooms and a verandah and a rent of Rs. 2 per month will show a return of 2¾ per cent. It is provided with a sink, a couple of shelves and a dozen pegs. The walls proposed are to be of burnt bricks set in lime. The flooring is to be of good murum, with a plaster of mud and murum. Cement flooring is not only costly but the people complain that it is cold to sleep on. The roofing will be of double country tiles. Corrugated iron sheets have become very costly and when uncovered by tiles are not desirable for such a hot place as Ahmedabad. Brick construction is specially proposed for Ahmedabad, as stone is unprocurable; in other places where stone is cheap, there of course brick would not be used. Further details are given on the plan No. 387—A Typical block of six cottages.

The Government of Bombay are encouraging the development of mill colonies and garden suburbs by allowing the factory owners to consult me through the Collector of the district. This usually means *inter alia* the provision of "lay-out" and "development" plans free of any charge to the owner. It is gratifying to find that they are availing themselves of this opportunity and the "lay-out" of several distinct colonies has now been prepared. Appendix X gives an aeroplane view of a portion of one of the sites at Ahmedabad as it will appear after development.

There are very few suggested schemes of social amelioration that escape the laconic definition "Utopian" or "Socialistic," and there are persons whose acrimony is instantly stimulated whenever it is proposed to examine existing institutions. This being the position, I am putting before the Commission with a certain amount of temerity an indication of a few practical schemes which it is hoped to start in Ahmedabad almost immediately.

Six different sites around Ahmedabad, suitable for development as garden suburbs for housing mill employees, have been selected. I have gone on the assumption that a certain group of mills will be served by one suburb situated within a mile from the mill centre. The position of the sites for the different suburbs are shown on the map of Ahmedabad (see plan) and have been selected with due regard to the following points:—(1) good building land, (2) proximity of mill, (3) healthy situation and (4) possibility of extension in the future.

The object I had in view was a two-fold one: first to provide hygienic accommodation of a model type at a rent which the working class can afford to pay, and secondly, to provide for the æsthetic in a humble way by designing a lay-out in such a manner that long rows of coolie chawls have been avoided. The proposed development would give a more homely aspect to the dwellings than is to be found in rows of military or police lines.

Dear land is the chief cause of high rents for cottages, and municipalities must face the task of offering facilities for the erection of cottages in the suburbs, the rents of which together with cost of transport to and from the place of work should not be more than the rental demanded for inferior property in the congested districts. I know of no better way in which this can be done than by the local authorities acquiring large areas of suburban agricultural land at wholesale prices, developing it and offering building plots at very low rentals, on suitable conditions.

In many instances owners of factories find it difficult to obtain land by private treaty, which is suitable for housing purposes, but I am hoping that Government will be able to acquire these lands at normal prices and lease them for a long period at low ground rents or re-sell them outright to the person undertaking to build. Where the case merits it, Government may see its way to forego for a substantial period some or all of the non-agricultural assessment on such lands as are used for housing the working classes. This would be a direct encouragement to the builder, who as a *quid pro quo* would of course be required to subscribe to certain simple building regulations, safeguarding the development.

It is obviously useless to prepare development plans encouraging site values if forethought is not taken in the planning of the house itself. It is an erroneous idea that what the poor require is fanciful decoration. It is not the minutiæ of lattice windows, paved paths and ornamental doors and so on they want; it is a home, however unpretentious, in which they can comfortably exist and rear their children. At any rate, that is the objective which should be aimed at by factory owners and local authorities when they are shaping their schemes.

The fact is, this problem of housing has reached an acute stage and I am convinced that it is hopeless to expect the best classes of Indian labour to take kindly or even at all to industry, when they are required to live in such degrading conditions as exist to-day in our larger towns.

At the last census there were in Bombay Municipal limits 37,932 occupied houses, housing a population of 979,445 persons, representing an average of 26 persons per house for the whole city. That the large majority of the men of Bombay do not have their wives with them is clearly shown by the fact that 640 thousand of the total population are males and only 340 thousand females. This would be a serious state of affairs for any city, and Bombay is no exception.

I am not surprised to be told by factory employees that they have nowhere to take their wives and families to. They do not know that the infantile death-rate for Bombay City reaches the appalling figure of 329 per thousand as against what is still bad enough, viz., 172 per thousand for the whole Presidency, but they do know in a rude sort of way that the risk of infants dying in the city is double what it is outside. It is not fair to the people themselves, nor is it commonsense on the controlling authorities' part to allow this sort of thing to continue.

If the population was to be brought up to its normal balance it will be seen that accommodation for another 300 thousand women would be required, truly an alarming thing to contemplate. But this must not be used as an argument for not providing decent accommodation. Rather should it serve as an incentive to the Municipality to be up and doing. Such is the present economic position that the poor people live on dear land and the rich on cheap land, an extraordinary anomaly for which the Municipality should certainly provide a palliative if not a corrective.

Poverty is remediable. Economists of the highest authority do not subscribe to the belief that want is a biological necessity or inseparable from social conditions, although very much bound up with and affected by them.

No tremendous revolution should be essential to the betterment of the lot of the wage-earning class. Amelioration is a question of national policy, social wisdom, sound economics and commonsense. A suggested specific for mitigating the poverty of wage-earners is the system of co-operation between the employer and employed. Profit-sharing has been tried with considerable success in many industrial and commercial undertakings and to a limited extent this is what I am pleading for when I ask the employers to spend something more than they have in the past on improving the environment of their own people. No effort is too great if only the employers in India can be brought to a full recognition of the fact that action in this direction on their part would lead to a cessation of animosity between the worker and the employer, an increased output of labour and a mutual benefit all round. I suspect it is only a morbid infatuation with the militant competitive ideal which impedes the progress of co-operation between master and man in this country. The shrewdest capitalists recognize its merits after a fair trial.

iat other coun-
is have done.

It is perfectly clear that the development of industry has created a concentration of population in our cities, with its resulting problems of over-crowding and insanitation which it is not a simple matter to deal with. It is found that the question for cheap but sanitary dwellings for our industrial population is everywhere acute, as the result of the failure of private capitalists to meet these requirements. India is not peculiar in this respect and almost every civilized country in the world has dealt with it at some time or the other.

Most European countries have as the result of investigation provided for Government aid in one form or another for the better housing of the working people. The method of granting the aid differs greatly in the various countries but the form in which the aid is given may be divided into three main classes :

(1) Building directly for rental or sale—Great Britain, France, Germany and Italy ;

(2) Making loans of public funds (including Government guarantee of loans) to—

  (a) *Local authorities*—Great Britain, Belgium, Austria, Germany, Denmark, Norway, and Sweden ;

  (b) *Co-operative or non-commercial building societies*—Great Britain, France, Belgium, Austria, Germany, Denmark, Italy, Norway, Sweden and Holland ;

  (c) *Employers*—Germany and Luxemburg ;

  (d) *Individuals*—Great Britain, Germany, Australia, New Zealand and Norway.

(3) Granting concessions in or exemptions from rates and taxes, or the granting of some other form of subsidy—Austria, Belgium, France, Germany, Italy, Hungary, Spain, Switzerland, Australia and New Zealand.

By these various methods these countries have expended vast sums from public funds to aid in the erection of sanitary buildings of low cost for their industrial classes.

Loans to public welfare, and co-operative societies and associations have played a very prominent part in the action of various countries, but for the great masses of the socially and economically less favourably situated working population, and above all for the unskilled workers, with respect to whom the housing problem is most pressing, building societies or associations are not adapted.

*What then is to be done for this class ?*—After a study of this question in some of the countries referred to, and many discussions with responsible persons, I have come to the deliberate conclusion that as far as the poorer classes are concerned—and here I refer to the poorer industrial class—salvation cannot be obtained unless the municipalities of our towns take definite action themselves to erect houses for them and also encourage private enterprise by granting rating and taxing concessions to builders of houses for the working classes. But I do not stop here. I am of opinion that the big employers of labour should be brought to a clearer recognition of the fact that a duty lies at their door in the direction of housing their employees and they should be encouraged by being assisted to obtain suitable sites for the purpose.

We are not by any means wholly lacking in these respects in Bombay, as the following table which classifies what has been done by various large public and semi-public bodies shows, but still a great deal more is required :—

*Working Class Housing Accommodation provided by public Bodies in Bombay up to the end of 1915.*

| Name. | No. of tenements. | Occupants. | Cost of construction building only. |
|---|---|---|---|
| *Permanent Chawls.* | | | Rs. |
| 1. The Bombay Improvement Trust* .. | 4,234 | 13,936 | 25,33,993 |
| 2. The Bombay Municipality .. | 2,053 | 8,235 | 19,29,979 |
| 3. The Port Trust .. | 962 | 4,430 | 9,33,930 |
| 4. The B. B. & C. I. Railway Company .. | 763 | 1,702 | 5,09,198 |
| 5. The G. I. P. Railway Company .. | 211 | 540 | 1,48,755 |
| Total .. | 8,223 | 28,843 | 60,55,855 |

* Also provide 928 tenements in semi-permanent camps to accommodate 3,808 persons.

The Improvement Trust naturally heads the list with accommodation for nearly 14,000 persons to their credit, or if the so-called "semi-permanent" quarters are included, a total of under 18,000 is reached. When it is realized that they have dishoused about 64,000 persons the position is seen to be rather a serious one. Fortunately private enterprise has come to their assistance to a considerable extent and has in one and two-room tenements accommodation for some 15,500 persons. Other private buildings have of course been erected on Trust estates, but if every available room is counted, according to the last published report, there is still a net deficiency of over 17,000 persons, which means over-crowding and higher rents in the already congested bazar (see Appendices H, I, J). I am strongly of opinion that whoever dishouses a number of persons compulsorily, whether for an improvement scheme, a railway, a dock or what else, should be compelled to provide housing accommodation for at *least* 50 per cent. of the persons dishoused.

A Government resolution issued through the General Department of the Government of Bombay (No. 3022), dated 14th June 1909, stated *inter alia* :—

"An important question to which insufficient attention has hitherto been devoted is the construction of chawls for the accommodation of the working classes. At the time of the formation of the City Improvement Trust it was estimated that a sum of 75 lakhs would be required for erecting sanitary dwellings for the poorer classes during the first 10 years of the Trust's existence. The Trust has now been 10 years in existence; but the sums hitherto expended on this object do not exceed 15 lakhs. His Excellency the Governor in Council is of the opinion that more rapid progress is now essential. The street schemes completed by the Board hitherto have resulted in the displacement of considerable numbers of the poorer classes. His Excellency the Governor in Council is not satisfied that the dwellings erected by the Trust for their occupation are nearly adequate to meet the growing demand for such quarters, which has been progressively accentuated by the development of Bombay. It is desirable that a vigorous policy for providing such chawls should be adopted forthwith. The accomodation should be provided in the east, north-east and central portions of the Island, in the vicinity of the docks, factories and workshops. To this the Governor in Council attaches great importance, having regard to the moral and physical advantage which good sanitary accommodation will confer upon the working classes, with consequent gain to the general health of Bombay."

The Bombay Improvement Trust Act was amended in 1913 so as to enable the Trust to finance building schemes called 'Poorer classes accommodation Schemes' for employers.

Any person employing members of the poorer classes may apply to the Improvement Trust to make a scheme for him. The scheme must provide for :—The construction of dwellings by the Improvement Trust or the employer according to plans prepared by the Trust and the letting on lease of the dwellings to the employer. The scheme may provide for the acquisition of the site and for the construction of accessory dwellings of any description necessary for the scheme and for the dwellings being erected on land acquired by the Trust, or owned by the employer. Before the Trust start to execute the scheme the employer must deposit with the Trust 20 per cent. of the estimated cost of the scheme. The deposit is returned to the employer by annual payments which are equivalent to the annual sinking fund charges on the cost of the scheme. On completion of the buildings by the Trust they will lease them to the employer for 28 years at an annual rent equivalent to (*a*) the interest payable by the Trust on all monies spent by them on the scheme, and (*b*) 2 per cent. per annum on the capital cost which represents the annual sinking fund charges for the recovery of the capital at the end of 28 years on the 3 per cent. table. On the determination of the lease the land and buildings then vest wholly in the employer.

This is an excellent arrangement as it enables the employer in effect to borrow capital at the same rate of interest as the Trust, which represents a saving to him of from 2 to 3 per cent. So far only one mill has availed themselves of this opportunity and they are spending nearly 5 lakhs on the experiment. 501 rooms are to be built which, I understand, are to cost on an average Rs. 972 per room. This is of course a great deal too much by comparison with the rent which the ordinary mill-hand can afford to pay. At 6 per cent. to cover interest and sinking fund the annual net rent would be Rs. 58 or about Rs. 84 gross, equivalent to Rs. 7 per month. The principle is good but it is to be hoped that cheaper buildings will be evolved in course of time. They will naturally have to be of much cheaper materials, but the point I desire to make is that if the masses of the people cannot afford to pay for the best type of building then they must have something that they can afford to pay for. It is to be sincerely hoped that the mill-owners of Bombay will see the advantages of the Trust schemes and avail themselves of the opportunities they offer.

If we turn to the greatest housing authority, I suppose in the world. viz., the London County Council (preceded by the Metropolitan Board of Works), we find that up to the end of 1912 they had in all their schemes together dishoused 66,273 persons, but had provided new accommodation themselves for 65,773 or all but 500. In addition to this they have provided new accommodation for a further 46,573 on their developed estates in the suburbs. I do not say that the economic conditions are similar in England and in India, but I do say that if the industrial and working classes are to be assisted to live under better conditions new accommodation must be provided. This does not require any argument. It is perfectly clear that the more houses that are demolished without new accommodation being provided the worse the over-crowding will be, and the higher the rents the people must pay. To the above criticism I must add that I am a great admirer of the work of the Bombay Improvement Trust and am convinced that future generations will live to thank the Trust for the great and important improvements they have and are about to carry out.

*Housing of the Working Classes by the Calcutta Improvement Trust.*—The Calcutta Improvement Act only dates from 1911, so that not much can be yet expected from the operations of the Trust. They did, however, in the year 1914 erect three blocks of dwellings at a total cost of Rs. 2,44,855 (Land Rs. 72,400 + Buildings Rs 1,72,455). The rents fixed were Rs. 8 for shops, and Rs. 3 and 4 for ground and upper floor rooms respectively. The number of tenements provided was 252 inclusive of shops. The total gross rents worked out to Rs. 11,928 (994 × 12) per annum and the Trust hoped that this would shew a net return of 4·1 per cent. This would have only left 16 per cent. of the gross rents for outgoings, which is obviously too small. The Trust now find that the premises are not fully occupied and the year ending March 1916 shews a net return of 0·8 per cent. only on the capital expenditure. They (the Trust) appear to have recently decided that they cannot build model bustees which would let at a rental which the working classes could afford to pay. This is not an uncommon experience of public bodies, but there are only two things to be done—to build at the cost of public funds or to reduce the quality of the materials used—if the people are to be provided for. One hopes that the Trust will not be discouraged by their first attempt.

Vhat the employers l labour say.

Appendix A is the circular request I issued to all the principal factories in the Presidency and other parts of India.

The first six questions have been dealt with in the memorandum.

From the reply to question *No. 7*, the factories in Bombay *Town and Island* appear to experience most difficulty in obtaining labour during the following months and in the order given : --

> The worst months being March, September, May to August, October and April. During December, January and February no difficulty is experienced.

Outside Bombay Island, in *Ahmedabad*, *Surat* and *Sholapur* no difficulty is experienced during March, but during the 4 or 5 months from July to November there seems to be a general consensus of opinion that labour is scarce. During the remaining portions of the year most of the employers find no difficulty.

*East Khandesh.*—The worst months for labour are November and December. This is due to the fact that cotton picking season is in full swing there ; for January and February, and to a slight extent in March.

*Reply to question No. 8.*—Generally speaking, the employers show a lamentable lack of knowledge as to the physical conditions of their employees. In only one case out of the whole of the returns received has an indication been given that a serious attempt had been made to note or record the illness of the employees. There seems to be the general tendency to put the whole of the indisposition down to fever ; a few cases only showing diarrhœa and dysentery.

For these reasons on the whole, I do not feel disposed to attach much importance to the general body of the replies to this question.

*In reply to question No. 9.*—No record is kept as to the number of deaths of employees.

*Replies to Nos. 10 and 11* of the questions have been summarized in Appendix C to this memorandum. They are of intense interest and deal with a considerable number of questions intimately concerning the factory owner and the factory employee.

There is an extraordinary concensus of opinion that housing is desirable and further that factory owners would benefit by providing decent accommodation at moderate rents. Many statements make it clear however that employees do not take kindly to discipline and the enforcement of sanitary rules in accommodation provided by factories. Such comments clearly indicate that the employer has not gone the right way to work. Factory housing can never be successful if it is desired to keep the tenants under a sort of martial law. They might almost as well be in prison.

Some of the returns refer to the difficulty of getting land in the vicinity of the factories. This is evident when the mills themselves are in overbuilton neighbourhoods, but it should be remembered that it is not necessary or even desirable in my opinion to have the accommodation too close to the factory. Give the people a chance to forget their workshop and have the hands a short distance away.

An objection raised to this is that there would be poaching of labour by other factories. Under existing conditions it is true this probably would result to a slight extent, but no more than is the case to-day, but the whole problem will be solved by making labour attractive and the reward for it compensatory.

A clear indication is expressed that shops for the sale of food-stuffs should be provided.

Education.

It is interesting to notice the importance attached, by the writers of the replies, to Education, and I think this is extremely encouraging. I am dealing with the problem at some length as it is one that deserves more than passing mention.

I am not in the position of having to prove that the ordinary factory employee would be of greater value in the industrial world if his education was improved. This, I think, is now generally admitted by all thinking people. The trouble is that the employee is so crassly ignorant that everyone seems afraid to make a serious beginning with him. The education under existing regulations can only be voluntary, supported possibly by a certain amount of moral suasion, and consequently it must be made intensely interesting.

Attempts have already been made to deal with this question both in Ahmedabad, Bombay, Madras and other places as far as the children are concerned. As long ago as 1911, Government asked the Bombay Municipality if something could not be done to give effect to the Factory Labour Commission's recommendations for the education of factory boys. At that time there were some 3,350 children working in Bombay City alone in the mills and factories, the large proportion of whom did not attend any school, and it was impossible that they could do so. Even then some 17 mills had schools of a sort, but the results were not good, and not even encouraging. The Municipality opened four factory schools for boys, but as such they have been a failure. In only one instance, I understand, did 10 or more factory boys regularly attend one school (DeLisle Road). I do not think it is a coincidence that the teacher of the class in this school was an ex-mill hand.

As recently as 14th February 1916, Government expressed itself disposed to accept the unanimous suggestion of a Committee appointed by them in 1913 to the effect that the "half-time" factory employee's period of work should by legislation be made compulsorily divisible into two 3-hour periods, the interval being partially utilized for instructional purposes. It is understood that the mill-owners of Bombay are considering a proposal whereby they will pay the school fees and a monetary bonus to all regular attendants from their mills at schools to be opened by the Municipality especially for this class of scholar. This is all in the right direction and holds out some hope that a proportion of the children at least will have a fair chance of an elementary education. But I think something more must be done. I am of opinion that employees between school age and ripe manhood and womanhood should be given a chance to become more useful members of the community and more efficient citizens.

Ahmedabad is making experiments in this direction and the managers of the Samasta Gujrat Paisa Fund are to be congratulated on their enterprise. The supervisors of the schools work voluntarily and the teaching staff is mostly composed of enthusiastic college students, who are now and then given a nominal honorarium. This is excellent material and if properly directed should do well.

I desire to emphasize the importance I attach to the correlation of Housing, Education and Recreation.

I make no pretence to pose as an educationalist, in the common acceptation of the term, nor do I think that the foibles and failings of human nature can be changed as by a wave of a wand, but I do think a great part of civilization and industrial progress is bound up with the cultivation of generous motives, of disinterested sympathies, of desire for justice and order and co-operation. There must be no vagueness of aim and we must definitely decide what we desire the educational process to do for the factory employee. I venture to suggest that the aim should be a threefold one :—

*Firstly.*—The education must be elastic enough to enable the discovery of aptitude and capacity : consequently variety is required.

*Secondly.*—It should be to reveal as far as possible to the semi-dormant mind a real idea of the conditions under which it lives. Elementary science is an integral part of such an education and general knowledge of physical laws and processes is of primary importance.

*Thirdly.*—Education should aim at the training of the employee in good, moral and physical habits, to develop wholesome mental interests and robust health of body—in short the training of character. But at this juncture the problem is a knotty one. It will not suffice if a halt is called here. If we merely develop the muscles and encourage the belief that the world is a place in which to get all one can, and to fortify oneself in wealth and comfort, we must not expect good citizens. No, the scholar must learn what duty and service and self-sacrifice mean. This can only be done by the cultivation of an imaginative sympathy, which can put itself in the place of another and desire to share rather than amass happiness.

After all, education is a contact of living minds and that is where the difficulty lies. The personality of the teaching staff is the root of the whole matter. Men and women of knowledge and of keen intellect are required, but if that is the sum total of their equipment they will miserably fail. I speak with conviction, as the result of a fairly extensive knowledge of working men in this, but principally European countries. The teachers must be men and women with a touch of inspiration, who will take a real personal interest in their pupils.

The classes could be made interesting and attractive in a dozen different ways.

By means of entertainment is one. The education must be such as would attract him. There is nothing strange in this. This is known to all educational authorities all over the world. The school-master, who teaches mathematics merely by putting his students through a series of rules and worked examples, has a very low percentage of satisfactory results as compared with the master who appeals to the students by means of object-lessons which at once enable them to grasp the theory being propounded, and creates an interest in the subject entirely foreign to the student, and bit by bit they will assimilate it. Do not let them know that they are treated as children and are being taught. Teaching on the Kindergarten method is eminently suitable. Incidentally each employee should know what he is doing, viz., helping towards the production of a better thing. I do not pretend to give a dissertation on how to teach. I leave it to proper authorities, but I have attempted to lay down some general lines which experience has shown to be very successful in other countries.

In dealing with the Presidency the conditions are largely similar to the whole of India The employers of labour should realize that their interest comes back to them by way of increased efficiency resulting from more interest in the work of the employee and the efficiency of his labourer and improved health and stamina. It is perfectly clear that the housing to be provided for the poorest class of employees must be commensurate with their food, sanitary construction and environment.

*Recreation.*—It has been recognized by many large employers of labour that the employee after a day's hard work is just as much in need of recreation as any of the other more favoured members of the community. This question of amusement is a difficult one because so low in the social and intellectual scale are many of the factory employees that the spontaneous provision of amusements by themselves is practically an unknown thing, apart, perhaps, from the more degrading and grosser forms of indulgence in gambling and drinking. This being the position it is clear that some organized method of providing amusement and enabling an employee to provide his own amusement is desirable. It is not necessary in a report of this nature to go into the details of what actually should or would be provided, as this is a question which can be well left to the discretion of the parties concerned. My experience of the working classes in other countries, however, certainly leads me to the belief that a social institute run largely by a committee of more intelligent employees, which would embrace amongst its attractions, entertainments, lantern shows, and may be boxing and wrestling as well as accommodation for simple social intercourse, would at once be highly successful and would form the germ from which foot-ball and hockey clubs, etc., might readily come into existence.

There is practically no limitation to the benefits of such an organization to the employees. It may be thought that the more literate members of the personnel of the factories would have some difficulties in availing themselves of such amusements. But a moment's reflection would show that this is by no means the case. It is from their ranks that the committee would be recruited; and it is just this more educated type of man who should do his share in improving the lot of the less fortunate employees.

Part of the work of the institute would be the supplying of the necessaries of life at something little more than cost. Baths and washing arrangements and games should also be provided. The concensus of opinion seems to be that the vast majority of the employees are unaccustomed to and as a result do not indulge in such amusements. Experience of life shows us that a man to be healthy must have amusements, no matter what walk of life he is in, and such an institution will form an excellent paving ground, and in a very short time members would readily pick up and enjoy a number of games which are now quite foreign to them. Apart from the mills there is a vast field open to the philanthropists of the large towns, many of whom are only too ready to put their hands in the pockets if they see that the money is well and wisely spent. There is simply no limit to the benefits such an institute would confer on the working classes. It would naturally include a medical officer to give free medical advice.

*Scarcity of labour for want of proper attraction.*—A suggestion for an increase in wages is an economic aspect of the question I do not discuss. As to whether they cannot see their way to slightly increasing the wages of the employees is a matter for employers as a body to decide. If they do it by means of the provision of institutes, social amenities and better housing, then it may be that they have done their share. If they do not recognize the responsibility then they will find they are left behind in the race; and that employers of labour of more advanced type will quickly have the pick of the labour market.

Economic position of employees.

I had it suggested to me by a man of considerable means that most of the destitution and misery that prevails amongst the lower class of mill employee was due to their thriftlessness and waste. I asked that gentleman if he had ever tried to keep and rear a family on Rs. 10 per month.

Hopeless poverty engenders recklessness, and indigence is inimical to mental development. Living from hand to mouth creates a despair of ordered domestic economy; and the alleged extravagance and carelessness of the factory employee is less the proof of a spendthrift tendency than the evidence of the extreme difficulty of prudent expenditure.

It has been alleged to me over and over again by employers of labour that the ordinary mill employees are given to drunkenness. Is it surprising that the toddy shop is the resort of these people? A man craves for company and relaxation, and as he cannot obtain it in any other way he seeks it among his fellows at the toddy shop. The habit of drunkenness is thus fostered and results in a desire which frequently becomes a pathological obsession. *Drunkenness is the effect of environment.*

The remedy is:—Change the environment.

A new school of workmen must be created and the old school will die a natural death by effluxion of time. The present position is:—

That the employee is not able to live in comfort, the squalid surroundings and his drunken friends aggravate the situation, and, once degraded, he becomes steeped deeper and deeper in the mire.

He is forced to borrow and once he borrows he is always a borrower as the result of the high interest he has to pay.

I deal with the question of domestic economy in some detail because it plays a very important part in the industrial position.

In the minority report of the Committee appointed by Government of Bombay in July 1913 to enquire into the education of factory children the following suggestive statement was made:—"The economic conditions of their (the young operatives') parents are such that they (the young operatives) will work for the remaining six hours at other mills under other names and it is next to impossible for the present to stop this practice which is notorious."

This is a definite and clear recognition of the fact by gentlemen who have unrivalled knowledge of the working conditions of our great mills, that the economic condition of the working classes connected with the mills is unsatisfactory.

There is, then, no need to labour this point of the bad economic position of the mill-hands, but before any suggestion for remedying it is made, it will be desirable to examine the cause and to touch on the effect. During the past 18 years there has been a fairly general increase in industry in India, and I have endeavoured to give some slight indication of this in Appendices F, G, and the three diagrams showing (i) Progress of Mill Industry in India and Bombay

Presidency, (ii) Growth of Labour and increase in the number of Factories and (iii) Remarkable increase in Export of Cotton to Japan during the past five years as compared with Export prior to 1911.

In the cotton mill industry alone the mills have increased from 173 in 1897 to 272 in 1915, being equivalent to nearly 58 per cent., and the employees of the mills have increased from 141 thousand to 265 thousand or 84 per cent. during the same period.

My recent enquiry in Bombay previously referred to showed that 48 per cent. of the employees came from the Konkan, 24 per cent. from the Deccan, and the rest 28 per cent. from other parts of India.

The average age of an employee was found to be 35 years. The average members of a family were 4·3, of which only 1·8 were earning members. The average monthly earnings of a family were found to be Rs. 25·7. Of this sum Rs. 14 are spent on food, Rs. 4 on house rent, and Re. 1-8-0 on *pân* and *biddis*. Only 28 per cent. of the employees drink tea and the average expenses per family under this head are Rs. 2-8-0 per month. Thirty-two per cent. are liquor drinkers, which on an average costs them Rs. 2-12-0 per month per family. The average expenses of a family are (14 + 4 + 1-8-0 + 2-8-0) Rs. 22 per month. This does not include occasional expenses on clothing, medical help, etc., and the regular item of interest on debt.

It is found that 80 per cent. of the employees in Bombay are in debt and that the average debt per head is Rs. 111·37. The employee having no security to give has to pay a very heavy rate of interest. Eight per cent. of the employees pay interest at annas two in the rupee per month, that is at 150 per cent. Fifty per cent. of the employees (or 62·5 per cent. of those having debts) pay interest at one anna in the rupee per month, that is at 75 per cent. The usual practice of the marwari is to recover the interest in advance. Thus for every rupee borrowed the employee receives only annas fifteen in cash, one anna being deducted as interest; and at this exorbitant rate of interest an employee on an average has to pay Rs. 7 by way of monthly interest. This is an extraordinary state of affairs, and on the face of it makes one think that in the circumstances the employee can never repay his capital debt back and that the marwari who is universally run down must be very often a loser in the bargain. The key to the solution, however, lies in the fact that the marwari does not lend a large amount to one man. He is a shrewd businessman, and gives out his capital in small sums to a variety of people. He is besides very keen about his interest. He will let an employee keep the loan, but will have his interest regularly. In this way the marwari receives as interest alone Rs. 150 in two years at 75 per cent. for every Rs. 100 lent. He has thus recouped his capital and made a handsome profit of 25 per cent. He still has a claim on the employee for the amount lent and so is never a loser in the end.

The average expenses of a family without tea and liquor are Rs. 19-8-0 per month and with the average interest of Rs. 7 payable to the marwari, the employee's expenditure amounts to Rs. 26·5 as against his earnings of Rs. 25·7. The employee can thus at most try to make both ends meet but he is never able to pay back his debt. The state of indebtedness thus becomes chronic. Recently the Servants of India Society have started co-operative credit banks to help the employees, by lending them money at a moderate rate of interest, and if such institutions were started in every mill the results would be surprising.

Going to the root of this question of indebtedness, what are its causes? Is it the reckless expenditure and indulgence in vices by the employee? Enquiry shows that only 38 per cent. of the employees in Bombay are drinkers of intoxicants, but not necessarily all immoderately so. The reasons alleged for debt are:—

Marriage,

Funerals,

Occasional extra expenditure,

Initial expenditure on commencement of service,

Medical help,

Famine at native place.

Twenty per cent. of the employees contract debt for marriage, 7 per cent. for funeral expenses, 28 per cent. for occasional extra expenditure such as journeys to their native place, etc., 7 per cent. for expenses at commencement of service, 11 per cent. for medical help for illness in the family, and 3 per cent. for famine at their native place.

This shows how keen is the struggle for existence. Twenty-eight per cent. of the employees have even after a year or two's work nothing left for occasional extra expenditure.

I found that 80 per cent. of the employees interviewed lived with their families in one-room tenements. The average number of inmates in such a tenement is 4·5 and the average rent per tenement is Rs. 4 per month.

On an average each employee was found to have put in 15·3 years of total service, of which ·3 years* were in the mill where the employee was then employed. Fifty-nine per cent. of the employees had been employed in one mill only since the beginning of their service.

Fifty per cent. of the employees were found to be unmarried, and of the remaining 50, 17 had lost by death one or two children and 17 more had lost three or more children and the remaining 16 had all their children living.

Forty-five per cent. owned landed property and 44 per cent. went to their country home each year.

I desire to draw the particular attention of the Commission to Appendix E which contains an account of a mill-hand's life in so far as his finances are concerned. It is of profound interest as having been written by a truswortby and experienced man who has literally "been through the mill" himself. His remarks as to how the debts of a deceased member of the family only go to burden the survivors are of course founded on fact.

Under Hindu law it is a religious duty of the family of the deceased debtor to discharge the deceased from "the sin of his debts." The Hindu commentator Narada says:—

> "Where a devotee or a man who maintained a sacrificial fire dies without having discharged his debt the whole merit of his devotions or of his perpetual fire belongs to his creditors."

The duty of relieving the debtor from these evil consequences falls on his male descendants to the second generation and was originally quite independent of the receipts of assets.

With these serious penalties for debt hanging over their heads, it seems almost incredible that anyone ever gets into debt, and still more incredible that vast numbers are debtors. It certainly seems to indicate a sublime trust in their children's ability to solve the problem, if not a wanton disregard of the consequences to themselves.

I should like to suggest the following remedies:—

(1) Registration of all money-lenders.

(2) Limitation of interest.

*(3) Imposition of "dam dupat" (i. e.. that no money-lender is able to recover more than double the amount lent) to all castes. At present it can only be enforced when both the contracting parties are Hindus.

(4) Legislation somewhat on the lines of the Deccan Agriculturists' Relief Act, 1879, for all persons whether agriculturist or not. If the ignorant borrowers were made more conversant with the provisions of section 19A of the Indian Contract Act, 1872, which enables the Court to set aside agreements obtained by undue influence they would not be so often victimized by the money-lender.

Appendix H shews that the average rise in rent per building in *Bombay* is 72 per cent. or if ward A is omitted 70 per cent. This is borne out by Appendix I which follows. Eleven properties were selected haphazard and their rents traced back to the year 1901. The enquiry shows that in some cases the rents have increased by 177 per cent. without any material additions or alterations to the buildings having taken place. The average increase however is 70 per cent.

This is a very serious state of affairs, but is only to be expected when the population is increasing (it increased by 26 per cent between 1901 and 1911) and the housing accommodation is increasing in a much lesser ratio. Between 1901 and 1915 the increase in the number of buildings in Bombay was only 16 per cent. The position is still worse from the industrial employee's point of view because food-stuffs during the same period have risen 32 per cent. in price as the table I give below shows:

*Schedule of prices of food-stuffs per Indian maund.*

| | 1901. | | | 1915. | | |
|---|---|---|---|---|---|---|
| | Rs. | a. | p. | Rs. | a. | p. |
| Jowari | 2 | 15 | 6 | 3 | 10 | 5 |
| Bajri | 5 | 5 | 8 | 4 | 10 | 4 |
| Wheat flour | 4 | 7 | 11 | 6 | 3 | 0 |
| Rice | 4 | 6 | 4 | 5 | 13 | 0 |
| Tur (dal) | 5 | 7 | 4 | 6 | 15 | 9 |
| Sugar | 8 | 2 | 7 | 13 | 7 | 2 |
| Firewood | 0 | 8 | 9 | 0 | 13 | 2 |
| | 31 | 6 | 1 | 41 | 9 | 7 = rise of 32 per cent. |

---

* I apparently unconsciously selected old hands. I do not think this figure can be accepted for general application.

The rise in wages as against this, it is more difficult to define. But I have prepared a statement with the assistance of the Chief Inspector of Factories of Bombay, which I give below :—

*Schedule of wages in Bombay.*

| Occupation. | Year 1902. | Year 1913. | Percentage of increase. | Year 1915. | Percentage of increase over 1902. |
|---|---|---|---|---|---|
| | Rs. a. p. | Rs. a. p. | | Rs. a. p. | |
| Blacksmith .. | 32 8 0 | 34 2 0 | **5·0** | 45 0 0 | 38·4 |
| Fitter .. | 32 8 0 | 40 0 0 | **23·0** | 45 0 0 | 38·4 |
| Carpenter .. | 25 0 0 | 32 13 0 | **31·2** | 50 0 0 | 100·0 |
| Bricklayer .. | 26 0 0 | 33 13 0 | **30·0** | 45 0 0 | 73·7 |
| Mason .. | 26 0 0 | 30 0 0 | **15·3** | 50 0 0 | 92·3 |
| Weaver (man) .. | 18 0 0 | 21 0 0 | **16·3** | 24 0 0 | 33·3 |
| Spinner (man) .. | 17 0 0 | 18 0 0 | **5·8** | 19 0 0 | 11·7 |
| *Unskilled workmen.* | | | | | |
| Messenger .. | 10 0 0 | 10 8 0 | **5·0** | 14 0 0 | 40·0 |
| Coolie (man) .. | 9 6 0 | 12 13 6 | **37·0** | 14 0 0 | 49·3 |
| Coolie (woman) .. | 6 0 0 | 6 12 0 | **12·5** | 8 0 0 | 33·3 |

This schedule shows that the increase in wages up to 1913 was within the range of 5 to 37 per cent. The wages of 1915 except in the case of male coolies show a marked increase, due mainly to the demand for skilled labour created by the war. The pre-war wages of the higher paid skilled labour all show a fairly large percentage of increase, but the weavers, spinners and messengers were not so fortunate.

Summarizing these results we find that (*a*) rents have increased in Bombay City by 70 per cent. ; (*b*) food-stuffs have increased by 32 per cent. ; (*c*) wages may generally be said to have increased, but at nothing like this rate. The result being that the working classes are much worse off. In other words, the purchasing power of the rupee is reduced.

Co-operative shops.

*The Swadeshi Mills at Kurla* have for the last 22 years maintained a grain shop for the benefit of their employees. The rate for the retail sale of grain here is only such as would cover the cost of the grain at wholesale prices by the mill, *plus* the charges of cartage. Thus the mill does not make any profit out of the bargain and moreover bears the pay of the clerk engaged on the work. Notwithstanding this it is found that many of the employees prefer to buy grain from the banias outside. The following is a summary of a few of the reasons given by mill-hands for this :—

1. The shop provides only rice, patni, bajri and dal.
2. Grain is issued to one man only once a week.
3. The amount of grain issued is limited to the pay due to the employee.
4. In addition to the main articles of food obtainable at the mill, many petty provisions, such as sweet oil, rock-oil, kernel, sugar, flour, jaggery, salt, fuel, etc., the cost of which comes to about as much as that of the main provisions, are required by the employees.

For these things the employee is forced to go to the bania. The bania who is a shrewd man sees that the employee who purchases from the mill store is getting out of his clutches and he refuses to supply only these minor provisions on credit. In this way the employee is forced to give up dealing at the mill store and as a consequence has to buy all the necessaries of life from the bania.

The second condition of the issue of grain only once a week from the mill store to one man is also found inconvenient by some. If their supply runs short before the end of the week they would not be given a further supply by the mill, nor could they go to the bania having once left him.

Furthermore, the bania, as a result of the heavy profits that he is making out of his customers, allows them abundant credit and the usual supply of provisions is not withheld even if an employee is out of service or unable to attend work owing to illness. Again, the bania is moreover the peoples' banker and lends them a rupee or two, or even more, as required for petty expenses or holiday making.

*The Morarji Goculdas Mills and the Indian Manufacturing Company* found the grain shops a failure. To make such institutions a success the illiterate employees must be taught to appreciate their benefits. Many of the hands are altogether indifferent as to the low rates at which the mill sells the grain. Theirs is the policy of *laissez faire*. They have been accustomed to buy at their bania's and they see no reason to give him up. They do not realize that the bania is charging them heavy rates and at the same time giving them inferior quality. As the ordinary dealer praises his wares so the millowner must proclaim to his employees by way of handbills and placards the benefits of the co-operative stores. But it must really be a co-operative store and not a shop dealing with grain only.

*The Gokak Mills at Gokak* have co-operative stores for the use of their employees.

The working capital is Rs. 7,000.

The number of members is 131.

Purchases are for cash or credit. Bills must be paid monthly : otherwise further supplies are stopped.

The articles dealt in are all kinds of native food-stuffs (known as "bussory"), groceries, stationery, cloth and oilman stores.

The members state that the prices are cheaper and the quality better than when they obtained their supplies from sahukars.

The monthly turnover averages Rs. 2,500.

Other millowners would be well advised to consider action on these lines, and for those of them who are not disposed to embark on such an enterprise themselves I urge them to try the licensing of provision shops within their premises. The shops could and should be subject to inspection by the mill authorities and the rates charged should be sanctioned by them. The shopkeeper might be given a couple of rooms in the mill compound free of or at a nominal rent and could fairly expect to get the custom of a considerable proportion of the employees, if not of all. In Bombay an average turnover of about 5,000 rupees a month, assuming an average of Rs. 5 per head per month, might be reckoned on. This method would relieve the mill authorities of the vexatious trifles that they naturally are not anxious to be worried with and at the same time enable them to do a great deal towards ensuring a cheaper and better supply of food-stuffs to their people. There is little doubt that purveyors would be prepared to compete with each other for the privilege thus offered of a virtual monopoly of the custom of the mill-hands.

I do not think that the average person is alive to the effect of good environment and comfortable homes upon the character, disposition and energy of the people.

If action is taken on the lines indicated in this memorandum a great step forward will have been made in the Industrial progress of this country and what is equally important we shall be rewarded by seeing a real advance made in the direction of elevating, improving and dignifying of the life of those who are our fellow-citizens.

I do not presume to think that I have, in the views I have expressed, done more than indicate the lines on which action should be taken. Matters so intricate demand the study of a large number of the ablest intellects, and I have only been persuaded to give evidence before this Commission in the earnest hope that what I might say, and the facts I might put forward, would at least serve to indicate that the anomalies, to which I have referred, are serious enough and of sufficient importance to justify not only the close reflection of sociologists but the strenuous action of employers of labour and of local authorities throughout India. There is no doubt that specific remedies could be applied by the legislature, by economic reforms, and by housing schemes, which, united with a general awakening of the public to a knowledge of what is needed, would go a long way towards the solution of what is one of the most pressing problems of India to-day, *viz.* :—" The Housing and Improvement of the condition of the Industrial classes of this Country ; " till on the tide of successful experiment the distant shore is reached on which are to be found contented and healthy workers.

*(Mr. Mirams submitted several diagrams and appendices which have not been included in the records.)*

### ORAL EVIDENCE, 23RD NOVEMBER 1917.

*President.*—*Q.* You are Consulting Surveyor to the Government of Bombay ?—*A.* Yes.

*Q.* How many years have you been here ?—*A.* Only four years ; before that I was in the Home Civil Service.

*Q.* I see you have submitted a memorandum which is largely based on an enquiry conducted over parts of India outside the Bomday Presidency. The enquiry, from the figures, appears to cover very nearly the whole area of the country, but not entirely.—*A.* That is so, yes.

*Q.* You have got 737 letters from the Bombay Presidency and Sind and 165 from other parts of India, so that your colour obtained is largely Bombay colour.—*A.* It so happens; nevertheless, it is the whole of India, with the exception of the Punjab.

*Mr. C. E. Low.*—*Q.* In the United Kingdom is there any obligation on employers of labour to provide houses for employees ?—*A.* No other than a moral obligation.

*Q.* Do you know any country where there is a legal statutory obligation ?—*A.* There is no such obligation, I think.

*Q.* Do you think it necessary to have a statutory obligation in India, or in any part of India ?—*A.* I should rather do it indirectly than make it a statutory enactment that every employer of labour should provide housing accommodation. I think it might be done in another way, *viz.*, by asking employers to make a certain contribution to a common fund for this purpose.

*Q.* Supposing he had already housed the whole or any part of his labour, what would you do then ?—*A.* We would give him a rebate. I have prepared a scheme on these lines, which I propose to submit as supplementary evidence. I had the opportunity recently of making a large number of enquiries in England, and have been desired to include the result of those enquiries in my evidence before the Commission. I hope to get it by the next mail.

*Q.* Do you not think that Railways and Departments of Government and public bodies should undertake an obligation in respect of the houses of their employees ?—*A.* Undoubtedly, I think they have a distinct moral obligation.

*Q.* Would that relieve the pressure on the existing chawl accommodation in the congested part of the city ?—*A.* It would inevitably do that, especially if these employees were housed outside the congested area. By relieving the congestion it would only to some extent improve matters, because the whole of the housing is really very very poor.

*Q.* What is your opinion with regard to the question whether it is desirable to pull down and build in the congested areas or to find spaces outside ?—*A.* It is very much a matter of finance. It is very expensive to demolish insanitary areas and rebuild; whereas it is less expensive to build *de novo*. That is the experience in London, Berlin and other large cities.

*Q.* If you pull down and rebuild in slum areas, I suppose it is necessary for financial reasons to have very high buildings ?—*A.* That is so.

*Q.* Do you think those very high buildings can ever be satisfactory ?—*A.* I am very averse to them. They have been found to be a great failure in countries where they have gone in for this sort of dwelling very largely, more particularly in Germany, where they have been condemned all round, because of their unhealthiness, overcrowding of certain areas, trouble in climbing up long flights of stairs, children and women being unable to take any exercise on account of having to come down these long flights of steps and so on.

*Q.* The difficulty that struck us particularly was in keeping them clean. In the case of four-storeyed buildings, there were four storeys for people to throw dirt down from on to the ground, and they also tended to block out light and air. People hung up their clothes in front of the house, which was particularly objectionable in a building already so overcrowded.—*A.* I quite agree.

*Q.* Also I suppose a large building of that sort gets intolerable without sanitary discipline, which is not easy to enforce.—*A.* That is so.

*Q.* We noticed a very marked difference in the way in which a building occupied by municipal employees was kept, compared with that represented by an Improvement Trust chawl which was inhabited by ordinary tenants.—*A.* Yes, but I am not quite clear as to which way the difference was indicated.

*Q.* The municipal employees lived cleanly, because they were made to; the ordinary tenants did not, because they could not be compelled to.—*A.* My experience is in exactly the opposite direction. Only yesterday I saw a municipal chawl so-called, in which there were rooms 10 × 14, with 8 or 9 people inhabiting them. Every person was a municipal employee.

*Q.* That is an added argument; if you cannot keep even municipal employees in order in a big chawl, still less can you casual lodgers.—*A.* I agree with that, but do not agree with the statement that you cannot keep them in order. In the case I instance no attempt was being made.

*Q.* We saw that they succeeded in doing so in one municipal chawl, while you tell us that they did not in another.—*A.* I agree with your conclusion that these high chawls are difficult to manage.

*Q.* It is unnatural to people of the mill-hand type to live in these large, many-storeyed buildings ?—*A.* Yes, they come from the mofussil and are used to the ordinary Indian hut.

*Q.* Don't you think that it takes a very bad one-storeyed bustee to be worse than a high many-storeyed chawl ?—*A.* Most emphatically yes. I prefer a mud hut myself to a chawl of four or five storeys.

*Q.* In that case, isn't it better to try and build, if possible, under conditions which will permit of either one storey or at the most two ?—*A.* Yes.

*Q.* Can land on which this can be done, either on a self-paying basis or without much extra cost, be obtained in sufficient quantities in Bombay ?—*A.* I think I can say that at Worli and Matunga it can. I know the Improvement Trust has recently been developing land in the latter district and paid fairly large prices for it, but I do not think that is necessary for housing coolie classes. You cannot really build for the very poorest type of mill employee in the heart of Bombay ; you could do it at Worli or Matunga with great comfort and a minimum of expense.

*Q.* Have you any idea what is the highest rent you can expect on an average for ordinary mill employees to pay for a room ?—*A.* From enquiry I find that Rs. 2 per room per mensem is quite as much as they can pay.

*Q.* We saw single families occupying three-rupee rooms, but don't know what their earnings were. What would people be earning in order to be able to pay Rs. 2 ?—*A.* Rs. 18 or 20.

*Q.* You take 10 per cent. as the maximum figure which industrial employees in large towns have to pay as rent ?—*A.* In a general way one could say that ; but you will of course realize that the lower the pay the higher the percentage will be, because the cost of necessaries is just the same.

*Q.* There is another point, that rates and taxes are compounded ?—*A.* Yes, it is customary in this country to compound.

*Q.* Somebody has to pay that ?—*A.* Yes.

*Q.* Under these circumstances, don't you think that for people drawing Rs. 20 the 10 per cent. on pay, which is, I think, usual as a standard for people in a different position, might be exceeded to a certain extent ?—*A.* I should be very sorry to think that they would have to pay more than 10 per cent.

*Q.* 10 per cent. is considered the ordinary economic limit for well-to-do people ?—*A.* From enquiries recently made in Bombay I find that 20 per cent. is the figure more generally paid. I took a variety of types and found that 20 per cent. was more or less the figure they were paying for rent. One has to remember that Bombay is rather exceptional ; rents are very high in Bombay.

*Q.* It all seems to me to point in the same direction. These people wear plenty of clothes, and appear to me to waste food.—*A.* I am afraid that is so, due to want of education.

*Q.* They had excellent pots and pans, much better than the ordinary villager.—*A.* I do not know about that.

*Q.* And the only thing they did seem to have really bad was their house accommodation. Would it not be better if they could pay a little more for it ?—*A.* Undoubtedly, but under present conditions I do not think they could afford to pay more on the wages they are getting.

*Q.* What do you consider an average wage drawn by a factory hand ; do you say Rs. 20 ?—*A.* No, I think I gave a figure. I found the average monthly wages earned were Rs. 25·7.

*Q.* You think that would not justify a rent of more than Rs. 2 ?—*A.* I really do not. Consider what it costs to live. In my memorandum I have given a schedule showing the minimum amount that a man would have to spend on necessaries.

*Q.* Do you think that one or two storeyed buildings could be built at that rent as an economic proposition in these outlying areas ?—*A.* I do not really think in Bombay that you could build for this type of man a house or habitation. He is the average of the poorest ; he is not the average of the population in Bombay. In the outlying areas it could be done.

*Q.* He is the average of a very large section of it ?—*A.* Yes, very large.

*Q.* Do you think that buildings of that type could be built at an economic rent of Rs. 2 ?—*A.* No.

*Q.* What would the difference amount to ?—*A.* I should say probably about Re. 1. You could do it, I think, at Rs. 3.

*Q.* You are aware of the fact that in Calcutta the buildings are apparently being built there at an uneconomic rent by employers. You refer to it in Appendix C* to your memorandum. There is one mill, the Dalhousie Jute Mill, whose annual loss is Rs. 1,280, equivalent to a little over 2 per cent. I don't know that jute millowners are very extravagant people ; they are not conspicuous for wasting money ; but they possibly find that it pays them to do so.—*A*. I should certainly agree with that.

---

* Not printed.

*Q*. We did as a matter of fact find that a number of people were living in houses paying from Rs. 2-8-0 without any apparent overcrowding. The overcrowding seemed to take place when they were paying more than that. Do you think that is a fair specimen of the general state of things ?—*A*. No, I do not think so. I have found a deal of overcrowding at the lower rents.

*Q*. You find overcrowding very severe at Rs. 5 and 7 ?—*A*. I do not think so. The point is that overcrowding naturally tends to reduce the rent *per capita*.

*Q*. Do you think they would readily come to live in rooms at the figure you mention—Rs. 2 ?—*A*. Yes, I do.

*Q*. And that they would then put up with the necessary discipline to prevent overcrowding ?—*A*. Oh yes.

*Q*. That is to say, the desire to take in more lodgers would not be so great ?—*A*. I can hardly answer as to the desire. If it was stopped, I think they would put up with it gradually.

*Q*. How much do they make in taking in lodgers ?—*A*. Sometimes about 12 annas a head. In one case where there were 9 people the women were paying 5 annas per month and the men 12 annas per month per head.

*Q*. To the people living there already ?—*A*. No. These were very poor municipal employees. They all herded together.

*Q*. The landlord did not look to one lot of them for his rent ?—*A*. I regret to say " no."

*Q*. Was that a municipal chawl ?—*A*. Yes.

*Q*. These places which you mention, Worli and Matunga, would they be within easy reach of the mills ?—*A*. Not by foot. I propose, especially at Matunga, a fast electric tram service, which could easily be run into Byculla. We have a new main road running right to the north now, and a settlement built there could easily be connected with the trams.

*Q*. Supposing the railway were electrified ?—*A*. It would not be quite so convenient, but a railway would also serve the purpose.

*Q*. Do you think tramways could serve all that population ?—*A*. I think so.

*Q*. Have you formed any estimate as to what population would have to be provided there ?—*A*. About some fifteen to twenty thousand people per settlement.

*Sir F. H. Stewart.*—*Q*. Are you in favour of shorter hours ?—*A*. Most emphatically. I made a lot of enquiries in England recently in connection with it.

*Mr. C. E. Low.*—*Q*. 15,000 is a flea-bite compared with the total number of mill employees ?—*A*. Oh yes.

*Q*. Have you any proposals with regard to the remaining 80 or 90 per cent. of them ?—*A*. It is merely an experimental measure, which, I believe, will be successful. I am making further proposals which in all provide for accommodation for 100,000 people.

*Q*. Do you think the areas in question would be sufficient to deal with all the mill employees who require accommodation and also the railway and tramway facilities to carry them to and from their work ?—*A*. Yes ; in addition there is room in Salsette ; the B. B. & C. I. Railway are about to electrify their system and run electric trains right through to Borivli.

*Q*. In what time do you think people could be brought in from Salsette to the new areas ?—*A*. In half an hour.

*Q*. How long does it take them at present to walk from their houses to the mills ?—*A*. Sometimes a quarter of an hour, sometimes 20 minutes, sometimes longer.

*Q*. One noticed in some cases at any rate that the people were only five minutes' walk from the mill, but there are other cases where they are further ?—*A*. Yes.

*Q*. And they do it by rising a little earlier and getting home a little later ?—*A*. Yes.

*Q*. You don't think this would add more than a quarter of an hour each way to the time ?—*A*. No, I think a quarter of an hour to 20 minutes. This 20 minutes would be a very fine boon, as the operative would be in the open air a little longer. He is working all day in the mills, goes home, has his food, goes to bed, and gets up in the morning to return to work.

*Q*. I am told he also sits up half the night singing ?—*A*. You cannot blame him for that ; the poor beggars have nothing else to do.

*Q*. We have got a philanthropic rupee a month for somebody to find : what is your proposal as to who should find it ?—*A*. I am anticipating proposing that factory owners should provide that.

*Q*. All of it ?—*A*. Yes.

*Q.* What inducement would be held out to them to do that ?—*A.* No inducement ; it would be done by compulsion.

*Q.* And what would be your argument for applying the principle of compulsion in this ountry, which does not exist in other countries ?—*A.* I think the position is rather different n India. We do not have the same type of person employed here as in the mills at home. Here the millowner undoubtedly does encourage people from the mofussil to come in and work n the mills, and that being so I think he has a very direct responsibility to see that those people are decently housed.

*Q.* Seeing also that the employer is relatively stronger, and the employee relatively weaker, and including also the fact that labour is not organized here as it is in England ?—*A.* Yes, that is the position, and they are under-paid.

*Q.* But the organization in labour very seldom has reference to housing accommodation: Is it part of the programme of Trade Unions to take up the housing question much in practice ?—*A.* No, not generally.

*Q.* And also another argument I suppose you would use would be that tropical conditions are more exigent than those in temperate climates in respect of housing and sanitation ?—*A.* Oh yes, certainly.

*Q.* We had it put to us by one witness that the women are in the habit of bringing cooked food in the middle of the day to their relations in the mills, and they could not do that if they had to travel by rail. Have you anything to say in regard to that poin of view ?—*A.* That is easily remedied. I have seen a lot of it in other countries : the communal kitchen in factories, which would solve this problem.

*Q.* Have you seen that in India ?—*A.* No.

*Q.* They have one in the Buckingham and Carnatic Mills. How about caste ?—*A.* That practice of the central kitchens is carried on especially in Government munition factories in England.

*Q.* What proportion of the total hands employed—by total hands I mean men, women and children—should have housing accommodation provided ?—*A.* I suggest that every employer should be called upon either to house or contribute towards the housing of 10 per cent. of his employees. I would like to see something more, but under the scheme I am proposing I am taking the figure of 10 per cent.

*Q.* What would that amount to in bulk—about 25,000 to 30,000 people ?—*A.* About 100,000 persons in all.

*Q.* How many persons to a room would you allow ?—*A.* Not more than two persons, plus children under 10. I want to do away with this one-room business altogether. I think every family should have at least 2 rooms, if one is only a small one.

*Q.* We have here the information in Mr. Manmohandas' note that outside the Colaba mills there are 130,000 adults working in the mills. If you take 10 per cent. of that you have 13,000 adults which would mean over 6,500 rooms, because you would have to allow for bachelors ; and the rest of the people will have to put up with the existing conditions for a while ?—*A.* Not the existing conditions ; the modified conditions.

*Q.* Unless more mills came along and were started in Bombay ?—*A.* I am very strongly of the opinion that if a mill does provide decent housing accommodation, that mill is going to get the pick of the labour market, and other mills are bound to follow suit. I am borne out in that view by the conclusions of the Ahmedabad millowners. I met the members of the Millowners' Association there several times, and they very strongly expressed those views, with the result that every millowner has come forward with suggestions for housing their employees.

*Q.* Is that mostly on single-storeyed lines ?—*A.* Nearly all single, and some two-storeyed.

*Q.* Do you think that when you put your working people out in colonies, in places like Salsette, even if you have separate blocks of huts attached separately or actually to certain mills, there is the same advantage to the individual millowner attaching, as if the buildings were close to his own mill ?—*A.* I agree, and imagine you are referring to this question of poaching labour.

*Q.* Not only that ; that as well.—*A.* That is so, but as a matter of fact that takes place in Bombay as much as if you had them in colonies.

*Q.* But when you ask a man to put his hand in his pocket to find this philanthropic rupee for housing a certain portion of his labour, he would be more ready to act on such a proposal if the labour could be set down near his mill than at Salsette ?—*A.* You cannot work on those lines, as land is altogether too expensive to make any such suggestions.

*Q.* It would be too expensive to put houses of that type near a large proportion of mills ?—*A.* Yes, and more than that, it would be impossible, as there is not the land available.

*Q.* You mean to say it would be too expensive to acquire the land ?—*A.* It would be impossible in some cases to get the land.

*Q.* Is there any reasonably large proportion of mills near which huts could be erected ?—*A.* Yes, that is the case of the Grant Road Mills, where they have a large area around. That could easily be tapped from Worli.

*Q.* That is to say, accommodation could be built near enough to that mill to attach it more or less distinctly to that mill ?—*A.* That could be done, but in regard to whole groups of mills—there is a big group of mills round Grant Road. The fact of their not being adjoining would not make any difference ; employees would go from any or all the mills to a group of houses.

*Q.* Who would run these buildings ?—*A.* I think the Municipality should. I think they have a responsibility and should perform their share.

*Q.* But the millowner has contributed a certain portion of the cost of housing one-tenth of the labour, would he have a definite right to have that proportion of his people housed ?—*A.* Certainly, but I should suggest that that might be a detail which might be left over for consideration. I have not gone into that particular point in my preliminary remarks.

*Q.* Is it not rather an important point whether he should get anything ?—*A.* My scheme provides that he should get a certain amount of housing in proportion to his contribution. The particular spot in which it were situated would be a detail.

*Q.* Would he have the right to have a certain proportion of his mill-hands housed according to what he had paid ?—*A.* Emphatically.

*Q.* How would you enforce that in practice ?—*A.* I am proposing that contributions should be paid to the Municipality and the Municipality should erect the buildings from capital; that Government should advance the contribution from the owners forming the interest and sinking fund on the money provided by Government.

*Q.* How would you meet the case of great inequality in circumstances between different mills ? You have one mill struggling to pay a small dividend, and another paying a large dividend and piling up a large reserve. Would it be possible to temper the wind to the shorn shareholder in any way ?—*A.* At the present moment mills are getting enormous returns.

*Q.* One or two had to be sold up last year to pay their debts.—*A.* Housing is just as much an object as paying their creditors.

*Q.* Would you not spread it out for a period in some cases ?—*A.* Yes, if it helped them ; as long as they paid interest.

*Sir F. H. Stewart.*—*Q.* Have you seen other parts of India ; have you been to Cawnpore, for instance ?—*A.* Yes.

*Q.* You have seen what is being done there in the way of housing labour ?—*A.* Yes.

*Q.* And Madras ?—*A.* I have not been to Madras.

*Q.* Are you connected with the Trust in any way ; are you a Member of the Improvement Trust ?—*A.* No.

*Q.* Or the Corporation ?—*A.* No, I am directly under the Government of Bombay.

*Q.* You think that labour would be willing to live in houses provided for them by millowners ?—*A.* Yes, I do ; of course the owners must not use "dragooning" methods of looking after their people. Millowners building chawls frequently want to "dragoon" the people, which they won't stand. Given ordinary freedom, I think they would be only too pleased to live in decent homes.

*Q.* Is that your reason for suggesting that the regulations relating to these buildings should be left to the Municipality ?—*A.* To a large extent yes.

*Q.* You give some tables here, showing, roughly, the increase in living expenses in Bombay city ; you say it has been 70 per cent. Wages, I think we were told the other day, the increase in wages amounted to about 40 per cent. for the same period ?—*A.* Yes. Of course the question of wages is rather difficult ; there is such a variety of classes.

*Q.* You think that more good could be done by a further increase of wages ?—*A.* Yes, among the poorer paid employees.

*Q.* Is that likely to lead to thrift or saving in any way ?—*A.* At present they are neither thrifty nor saving ; they are not getting living wages.

*Q.* Would it not be much better, whoever does it, to give the advance in kind rather than in more money ; improve their housing accommodation, give them primary education, etc. ?—*A.* I think that would be the best, till they were better educated.

*Q.* Also could anything be done here in the way of shops for food-stuffs ?—*A.* Yes, there are one or two mills who have done that. Tata's mills have done that for some years. Generally, they are not successful.

*Q.* Because of the opposition of the banias ?—*A.* Yes.

*Q.* These shops do not give credit ?—*A.* That is so, and generally, as I have indicated, they don't provide the whole of the man's needs. They very frequently provide grain only, and possibly one or two other things ; and the man has to go to the *bania* to buy other necessaries.

*Q.* If all these improvements you would like to see were to come gradually, such as housing, time for recreation, education, etc., which do you think is the one to begin with, the housing ?—*A.* Emphatically.

*Q.* You give an illustration of a manufacturing company in South Carolina. The circumstances in India are altogether different, are they not ?—*A.* They are different, but nevertheless it indicates the lines a reasonable Indian employer could go on.

*Sir D. J. Tata.*—*Q.* You quote them as an ideal ?—*A.* Just so.

*President.*—*Q.* I cannot find any reference in your text to the plate given as " The Bombay Improvement Trust Cheap Model Workmen's Chawls in scheme No. 5 ". You have not referred to that in the text, have you ?—*A.* I refer to the cost of those buildings on page 16.

*Q.* Do you approve of this model chawl ?—*A.* I think it is an enormous improvement on the three and four storeys. It is an experiment, unfortunately a costly one ; but I think they can evolve something cheaper.

*Q.* Do you approve of having cooking places and a bathroom in a 10 ft. room ?—*A.* No, but I think they would improve on that as time goes on.

*Q.* In the case of the model you have planned yourself at Ahmedabad, would Rs. 3,000 cover the cost of the land ?—*A.* The land is very cheap there, about Rs. 1,000 an acre.

*Q.* It does not apply to other areas where land is expensive ?—*A.* No.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* You have given us this long volume, but have you got any concrete scheme ?—*A.* Oh yes.

*Q.* Will you be able to give it to the Commission for them to form their opinion about it ?—*A.* I was hoping that I might have permission to send it along in writing. It is ready, but I want to incorporate in it some information that I have cabled for from England. I indicated the lines of the scheme this morning by suggesting a contribution by the factory owners on the basis of the number of employees. This contribution should be made to a fund which would go to the Municipality as representing interest on the sinking fund.

*Q.* As you know, the Improvement Trust have taken over the function of accommodating the labouring classes in Bombay ?—*A.* Yes, but unfortunately they have not been able to do it.

*Q.* You see I find from your report here that you talk of employers of labour being very harsh to their employees, but can you tell me how the Improvement Trust have provided for the poorer classes whose houses they have demolished, and built beautiful buildings over them ?—*A.* The figures indicate that they have not provided for persons they have dishoused in the past, but are endeavouring to remedy that.

*Q.* There is a great difference between the number of people they have removed and the number accommodated, so they are responsible as well.—*A.* I do not omit them from my condemnation.

*Q.* And what about the bye-laws of the Municipality ; what bye-laws could better be made use of ?—*A.* The Improvement Trust are very particular to see that their dwellings are not overcrowded ; but the Municipality take no cognisance of overcrowding ; there are no bye-laws or inspection concerned with this serious feature.

*Q.* But what about the building bye-laws. Do you think the Improvement Trust chawls are better than those built under the Municipal bye-laws ?—*A.* I think so distinctly ; not that I am an admirer of the Improvement Trust chawls. I do not like the chawl system of building, the Improvement Trust do not attempt to cater for the very poorest. That has been stated over and over again.

*Q.* But they have built some chawls for the poorer classes ?—*A.* Yes, but I draw a distinction between poorer and the poorest. They do not attempt to cater for the poorest classes.

*Q.* But there were certain chawls which the members of the Commission went into the other day ; not the temporary structures, but the chawls built near Chandanwadi. Have you seen those chawls ; are they very healthy ?—*A.* I have seen them ; the rent is Rs. 5. I agree that they are healthy.

---

* Not printed.

*Q.* They are as good as privately-owned chawls ?—*A.* Much better, but I think you have selected probably the worst of the Improvement Trust chawls from that point of view.

*Q.* We were taken by the Health Officer of the city to see the chawls. They are new ones, built of ferro-concrete. Do you like the accommodation they have made ?—*A.* Personally I do not.

*Q.* Don't you think that these poorer classes are not able to live in a way which they ought to, because they are not educated ?—*A.* Oh yes, that is one of my points certainly.

*Q.* So, as they have not received education, before you build chawls for them you must provide them with education or else they will make it as unhealthy as always ?—*A.* No; the two things go hand in hand.

*Q.* In your second page you say, "The lot of the plebeians of today is in some respects rather worse than that of the slaves of former times". What do you mean by "in some respects" ? What respects ?—*A.* I think one has only to study the life of the mill-hand to agree with that statement over and over again.

*Q.* What is the life of the mill-hand ? What made you make this remark, "they are worse than the slaves of former times" ?—*A.* The slaves of former times were nominally slaves; the owner did have parental authority over them; did take some sort of interest in them. They did not get up in the dark to work. They did not have to live under such conditions. They had proper food and proper places to sleep and live in. I am largely referring to millowners, because they form the bulk of employers of labour.

*Q.* Do you include in them the other big employers of labour, the Government, the Municipality, etc. ?—*A.* I do not distinguish particularly between millowners.

*Q.* But do you include them all ?—*A.* If you put it that way, I will say "yes". I would however like to emphatically mention the millowners notwithstanding.

*President.*—*Q.* Is there any use in allowing a sentence like that to remain ? There is a difference between a man who is allowed his liberty and a slave who is not. If it was a fair comparison, it would have been all right.—*A.* I suggest it is a very fair comparison. The two things are certainly comparable.

*Q.* You are comparing a slave with what you think is a very badly used free man; the two things are so unlike.—*A.* I very respectfully suggest that there is in my view a great similarity between the two.

*Q.* It does not lead to anything; it does not lead to a proposition on which you can act.—*A.* I was trying to draw attention to the fact that the factory type of employee today is extremely badly treated and that his life is worse than that of the slaves of former times. He may be called a free man, but I strongly maintain that his life is a worse existence than that of the slave of former times.

*Q.* Probably also so are the lives of a good many higher officials, if you take the hard work, the anxiety, the responsibility that they have to go through. That shows your comparison is not a fair one. It is like your memorandum, which has everything in it except a practical scheme which is missing.—*A.* Pardon me, but I have a scheme.

*Q.* You just now said to Sir Fazulbhoy that you have no scheme ready to put before us. You said you were waiting for further information from home to put before us.—*A.* I gave you an outline of my scheme this morning, in reply to questions put to me. I asked for permission of the Commission to submit it in writing when I get further information from home which I wished to embody.

*Q.* But your scheme has not been put before us in writing. You have put this enormous memorandum before us, but not your scheme. What is the use of the memorandum if you have no scheme to propose ?—*A.* This memorandum distinctly draws attention to various abuses which are taking place in Bombay and throughout India, and I make very strong suggestions under several heads.

*Q.* I am only making the suggestion to you that remarks of this kind don't add to the value of your note, and as you prefer to have this placed on record, we don't object. I am only giving you certain advice on the subject.—*A.* I make no request one way or the other about placing the memorandum on record. I leave it to you to do what you please.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* You say, "Although I have observed a good deal of poverty in my walk through life and in many countries, and although I had read a great deal about poverty, I confess I did not realise its poignancy and its utter wretchedness until I came to inspect the so-called homes of the poorer working classes of the town of Bombay." How about the East end slums of London ?—*A.* I do not think they compare at all unfavourably with slums in Bombay. You do not find 8 or 9 people living in one room in the ordinary way.

*Q.* Do you think that the 8 or 9 sleep in the room? The climate would not permit that. They all sleep out in the open air.—*A.* You never find overcrowding to that extent in England. These people have to sleep indoors in the monsoon. There is nowhere else where they can sleep.

*Q.* Don't you think that on the approach of the monsoon they leave for their native place?—*A.* I do not think so; to some extent that is so. They go to their country for cultivation purposes, but not in sufficient numbers to account for the excess, over the normal.

*Q.* Don't you think that the mills get less hands then?—*A.* Some of the mills, but there are other places besides the mills, like the docks.

*Q.* You think that it is not so in the East end?—*A.* I think they are far worse than the East end.

*Q.* Have you had occasion to see some of these villages, like Thana and Kalyan, how the people live there; is it not just the same?—*A.* There is nothing like the same overcrowding.

*Q.* Some of the houses are just the same without any ventilation?—*A.* I said this morning I prefer the hut to the Bombay chawl. I think it is much more healthy.

*Q.* In a small village they have got nearly 50 huts together, no drainage, the huts are small with no ventilation, only a small hole for a window. Do you think that is preferable to the chawls here with their drainage system and ventilation?—*A.* Undoubtedly, with their overcrowding. The drainage in the village is much simpler. The people go right away out of the village to meet the calls of nature.

*Q.* Then you want Government to legislate for accommodation for nearly 10 per cent. of the employees?—*A.* Yes.

*Q.* In regard to all employers of labour, including the factory owners?—*A.* When you come to employers of labour who are not classified as factory owners, it is very difficult to legislate for them.

*Q.* And the Government employers, the Post Office, Docks, etc., ought they not to be included?—*A.* I draw no distinction at all.

*Q.* Why should not the legislation be for all?—*A.* Certainly.

*Q.* You want it for the whole of India, or for Bombay only, leaving out Calcutta?—*A.* I address myself to Bombay for the moment.

*Q.* But if you think it ought to be done for Bombay, then why not for Calcutta?—*A.* Certainly.

*Q.* Have you been to Calcutta and seen the jute mills?—*A.* No.

*Q.* You talk about the Pelzer Manufacturing Co. of South Carolina. You say, "The town of Pelzer,in which the factories are located, contains a population of about 6,000 persons". How can you compare this with Bombay?—*A.* I am not comparing it.

*Q.* You are comparing the sanitary arrangements. All the mills which are up-country have got accommodation for all their mill-hands, and they also have that in a place like Pelzer. If they don't have accommodation they cannot get anyone to live there; they are compelled to, as it is for working their own factory.—*A.* They are doing more than providing accommodation.

*Q.* Yes, they also provide medical aid, etc., otherwise the men will run away to the big centres. You say, "Where the case merits it, Government may see its way to forego for a substantial period some or all of the non-agricultural assessment on such lands as are used for housing the working classes". That is in the city of Bombay?—*A.* That is throughout India.

*Q.* And must be also applied to the city?—*A.* I see no reason for not doing so; I think it would be a distinct encouragement.

*Q.* Have you seen Mr. Manmohandas Ramji's scheme for accommodating mill-hands?—*A.* I just glanced at it.

*Q.* Do you think the scheme that the Municipality should get the land and the mill-owners should contribute towards the cost of the buildings is more feasible?—*A.* I think it might be a workable scheme.

*Q.* But if you are going to have chawls in the city, they must be three-storeyed chawls.—*A.* Yes, in the city, but I had in mind Mahim and other places.

*Q.* Then on the Worli side; you know there is an open drain, which smells awfully.—*A.* That is to be remedied.

*Q.* Will it be remedied?—*A.* We are hoping so.

*Q.* And on that hope we cannot build these chawls ?—*A.* We are promised that it will be remedied.

*Q.* There is some doubt about it. Then you say, under the head of "Education", "I am not not in the position of having to prove that the ordinary factory employee would be of greater value in the industrial world if his education was improved ". Is he getting any education at all that it must be improved ?—*A.* Just as much as everybody has a certain amount of education.

*Q.* Later on you say, " In the minority report of the Committee appointed by the Government of Bombay in July 1913 to enquire into the education of the factory children, the following suggestive statement was made :- 'The economic conditions of their (the young operatives') parents are such that they (the young operatives) will work for the remaining six hours at other mills under other names and it is next to impossible for the present to stop this practice which is notorious' ". You have only quoted one paragraph of the Minority Report; isn't that so ?—*A.* Yes.

*Q.* You know what was the Majority Report, and who were the people who signed the Majority Report. The Honourable Mr. Dinshaw Wacha was in the majority report.—*A.* I am not sure, I think he was in the minority.

*Q.* You know the result of the Committee's Report, that unless it was made universal, the factories ought not to be compelled ; then the Government called a committee and arranged with the Municipality. *A.* Yes.

*Q.* In regard to the minority report, there were more people who knew about mills and education in the majority than in the minority.—*A.* Several members who signed the minority report are very well-known millowners.

*Q.* Who are they ?—*A.* I forget. I have not their names in front of me at the moment.

*Q.* Those who represented the Municipality. They did not think it necessary to undertake the burden of education of the factory children ; wasn't that so ?—*A.* Very likely.

*Q.* You say, " My experience of the working classes in other countries, however, certainly leads me to the belief that a social institute run largely by a committee of more intelligent employees, which would embrace, amongst its attractions, entertainments, lantern shows, and may be boxing and wrestling, as well as accommodation for simple social intercourse, would at once be highly successful and would form the germ from which football and hockey clubs, etc., might readily come into existence ". Don't you think that more than this is required ; the thing which is most needed, and one which the Municipality ought to take up, is a recreation ground. Supposing these people get a Sunday off ; where are they to go ; are they to loaf about in the streets ?—*A.* I quite agree with you.

*Q.* So if you have healthy accommodation they want a healthy place to take their recreation in.—*A.* Undoubtedly.

*Q.* They don't get recreation in the free air. Don't you think that also is needed ?—*A.* Certainly ; there ought to be recreation grounds.

*Q.* In speaking of these employees in the above paragraph, do you also include the carders, jobbers, etc. ?—*A.* Yes.

*Q.* Under the head of " Economic position of employees ", you say, " I had it suggested to me by a man of considerable means that most of the destitution and misery that prevails amongst the lower class of mill employees was due to their thriftlessness and waste. I asked that gentleman if he had ever tried to keep and rear a family on Rs. 10 per month ". Do you know what a mill-hand gets on an average in the city ?—*A.* About Rs. 25 per family.

*Q.* Then how do you say Rs. 10 ?—*A.* That was my question. As there are many people who have to live on Rs. 10 a month.

*Q.* Not the factory man ?—*A.* There are many people in Bombay who have to live on Rs. 10.

*Q.* There are sympathisers for the mill-hands, but none for the poor industrial men. I suppose they and not only the mill-hands ought to be well provided for ?—*A.* Certainly.

*Q.* You say, " The average age of an employee was found to be 35 years. The average members of a family were 4·3, of which only 1·8 were earning members. The average monthly earnings of a family were found to be Rs. 25-7-0 ". How do you arrive at the figure ?—*A.* By taking the replies given by the 100 men, and taking their average. I interviewed 100 employees in the mills and asked them certain questions which are shown in the appendix.*

*Q.* Have you verified that statement ? What do you think the average mill-hand earns ?—*A.* The average man about Rs. 20.

---

* Not printed.

*Q*. And the woman ? You know that generally when a man works in the mills his wife generally works with him, and sometimes he has one or more wives and benefits by their incomes ?—*A*. It is a very undesirable practice.

*Q*. The labourers' women also work in the mills ?—*A*. Not always.

*Q*. Generally ; have you got any experience of that ?—*A*. I do not find that their wives always work in the mills ; frequently, yes.

*Q*. Generally he has got more than one wife, and he gets their income also. Have you verified this statement in your Appendix E :* " The reason of all this poverty is that the rates of wages fixed some 50 years ago are still continued without any substantial increase or change, in spite of the increased prices and house rents, etc." ?—*A*. No, that has been translated literally from this man's statement.

*Q*. You say, in regard to this man: " He was a clerk for many years in one of the biggest mills in Bombay. He did not write this note for publication but has since consented to its being translated at my special request." But before putting it in the report you must have verified it ; or did you put down whatever he said ?—*A*. I did not confirm this statement ; I merely inserted it as I thought it would interest the Commission to see what this man had to say. This man is a member of the Servants of India Society.

*Q*. This one statement is undoubtedly wrong, because my experience has been not only that as a millowner but also as one of the members of the Millowners' Association. We have found that wages have increased more than cent. per cent. within the last 20 years, while he says that for 50 years there has been no change.—*A*. That is obviously incorrect.

*Q*. Have you seen the weavers who go to the mills ?—*A*. Yes.

*Q*. Have they not got on gold ornaments on their persons ?—*A*. One cannot tell gold ornaments now-a-days, whether they are gold or brass.

*Q*. Then you say that these people are God-fearing, etc.—*A*. I do not say that.

*Q*. They say so ; do you agree with that statement, and that they generally pay the debts of their ancestors, etc. ?—*A*. I imagine that is so ; I think they have to.

*Q*. If you see the Small Cause Court report you will find it quite different. And generally nearly 45 per cent. of these people have their own land in the country ?—*A*. That sounds rather large ; " landowners " ? But you know what that means ?

*Q*. They are ; but this picture here seems to be contradictory to that.

*President*.—*Q*. Where have you made the statement about people owning their own land ?—*A*. That was in a discussion about the economic position : " Forty-five per cent. owned landed property."

*Hon'ble Sir Fazulbhoy Currimbhoy*.—*Q*. When you say that, you make grossly exaggerated statements.

*President*.—*Q*. Appendix E* is now stated to have been given on the authority of a man that Mr. Mirams is not prepared to back ; but you say, " I desire to draw the particular attention of the Commission to Appendix E* which contains an account of a mill-hand's life in so far as his finances are concerned. It is of profound interest as having been written by a trustworthy and experienced man who has literally ' been through the mill ' himself. His remarks as to how the debts of a deceased member of the family only go to burden the survivors are of course founded on fact." I cannot understand how you quote a statement that you say is not quite accurate ?—*A*. I suggest in the main it will give a fairly good idea of the life of the employees.

*Hon'ble Sir Fazulbhoy Currimbhoy*.—*Q*. There are many statements like this about the daily wages which are grossly exaggerated. Several mill-hands have received 10 per cent. more wages, and we have had two witnesses here, very prominent millowners, who have said that after getting the 10 per cent. increase of wages, the hands are working less hours with less production.—*A*. Yes, I saw that statement.

*Q*. All the statements in the appendix* make a very gloomy picture. I know that if the mills build their own chawls, and if a man is working in one factory, his brother may be working in another, and his wife in a third ; or he has got his friends who live as in a chummery, so that there would be more people. If a millowner provided for 1,000 of his own men, other adults will come and live with them.—*A*. I think it is a matter of control, isn't it ?

*Q*. But don't you think that the mill-hand will leave that particular mill and go away, because you say in Appendix C,* " If one desires to house one's own employees one must be prepared to house 3 outsiders per every worker in the mill. The employees do not recognize the benefit of clean housing or regulations regarding sanitation and overcrowding." Do you think at present the mill-hands are really the masters or the servants : what position do they occupy at present ?—*A*. The statement you attribute to me is a quotation from a millowner, not my statement; but my opinion is they are very much more the servants than in other countries.

---

* Not printed.

*Q*. Will you just define that ?—*A*. Labour has not asserted itself in this country as it has in other countries.

*Q*. Do you know how many hours the mill-hand works in the mills ?—*A*. Twelve hours.

*Q*. How many hours' actual work ?—*A*. I suppose no one could answer that question exactly, because they are said to shirk their work.

*Q*. Have you asked that question to the mill people ?—*A*. I have seen it stated that the mill employees waste a lot of their time by sitting down and not working.

*Q*. Do you know that some of the millowners say that their mill-hands work in the mill not more than 8 hours regularly ?—*A*. As a matter of fact it would be much better if they reduced their hours of working to 10.

*Q*. How many hours do they work here compared with other countries ?—*A*. 10 hours.

*Q*. Supposing you reduced the working hours to 10; do you think in this tropical climate a mill-hand can work steadily in the factory for more than 4 or 5 hours at a stretch; or would he go out at intervals of 2 hours for half an hour's rest ?—*A*. That has been proved to be a failure. They do not like going out every half hour. One man tried the experiment of letting them have ½ hour's intervals.

*Q*. But they go of their own account. Do you think they can work steadily for five hours at a stretch ?—*A*. These men are accustomed to it. It is their own climate. It is very undesirable though.

*Q*. Then you would bring it to 8 hours ?—*A*. That is not for me to say.

*Q*. Do you compare the conditions existing here with those in England only, or Germany too ?—*A*. England.

*Q*. Not Japan ?—*A* No.

*Q*. There they work 8 hours steadily ?—*A*. Fairly steadily.

*Q*. And they are more skilled and can produce better ?—*A*. Yes.

*Q*. If these mill-hands worked 8 hours in the factory they would not be able to produce so much as the Lancashire man ?—*A*. They have not the same keenness.

*Q*. They have no stamina; the climate is against them. They are not able to produce the same amount as an 8-hour production in other countries where they have more skilled labour.—*A*. I agree.

*Q*. Then they must close down ?—*A*. I did not mention 8 hours.

*Q*. In 10 hours how much will they produce ?—*A*. The mills are paying heavy dividends now.

*Q*. The dividends are paid, but other people are making money too. These are exceptional circumstances; we are not going to have war for centuries; I speak of normal conditions; don't talk of the profits we are making now; other companies are making the same all over the world.—*A*. For some years the millowners have done very well.

*Q*. How many years ?—*A*. Five or 6 years.

*Q*. Not 5 or 6 years; only for the past 4 years, but sometimes they have come to insolvency too.

*President*.—*Q*. Do you know their average earnings ?—*A*. I have not the figures.

*Hon'ble Sir Fazulbhoy Currimbhoy*.—*Q*. You don't know what percentage they earn on the capital ?—*A*. I have seen the figures, they are enormous.

*President*.—*Q*. What do you mean by "enormous" ? Do you refer to normal times ?—*A*. I cannot give you the figures.

*Hon'ble Sir Fazulbhoy Currimbhoy*.—*Q*. You found it enormous even before war times ?—*A*. I said they are paying enormous dividends now.

*Q*. Do you think that, when normal times return, it will be possible for Indian mills, if they work 10 hours, to compete and produce the same amount that the skilled labour of Europe or Japan produces ?—*A*. What I say is if we reduce the hours of labour in the mills we will get as large an output as we are getting at the present moment; that is the experience of manufacturers in different parts of the world.

*Q*. I speak of Indian conditions; have you asked any man who was connected with any factory to give you an independent view ?—*A*. It has not been tried.

*Q*. But if they are not able to compete successfully with other parts of the world, what are they to do—close down ?—*A*. The question does not arise, if my hypothesis is correct.

*Q.* That is what we heard from the people. Mr. Saklatvala gave evidence that they would not be able to give the same production if you run down from 12 to 10 hours.—*A.* That is contradictory to the opinion of factory owners in different parts of the world.

*Q.* That is because they have skilled labour.—*A.* Then improve the skill of your labour.

*Q.* That you cannot do only with shorter hours; you have got to give them education, which they should have got many years ago.—*A.* I combine in my recommendations education, housing, etc.

*Mr. A. Chatterton.*—*Q.* In connection with your scheme to establish a settlement some distance out at Matunga, has any estimate been framed as to the cost of bringing labour to the mills and taking them home at night?—*A.* I estimate ½ anna per head a day. It would pay the electric tramways to do that.

*Q.* Is the congestion in the municipal limits increasing?—*A.* Oh yes, distinctly.

*Q.* Is there any prohibition in regard to erecting new mills in the municipal area?—*A.* No, there is no prohibition.

*Q.* They can go on adding to the congestion?—*A.* Yes.

*Q.* Is there any scheme for establishing industrial suburbs beyond the limits of the congested area?—*A.* No official scheme. There are several co-operative societies talking about the erection of houses for the middle class, but nothing for the poorer working classes.

*Q.* Then to prevent these from going from bad to worse, would it not be advisable to frame regulations regarding the amount of land which must be around each factory or mill, so as to provide sufficient accommodation for the working people?—*A.* It would, if it were possible. Is the suggestion to house them in the compound of the mill?

*Q.* Provided there is a sufficient area of land around each factory?—*A.* In immediate proximity to the factory? Personally I am against that. I think a mill employee would be all the better for being a little removed from the factory.

*Q.* Against that you have the cost of removing them?—*A.* On the other hand you have got cheaper land; the further you go, the cheaper the land.

*Q.* You say there is no scheme at present, under official consideration, for the creation of industrial suburbs?—*A.* That is so.

*Q.* The present state of things must be remedied to some extent. The question is how? Would you prohibit mills from being erected within a certain distance of the city in addition to your scheme for providing housing accommodation?—*A.* I think they should be taken right away to the north of the island. They should not be allowed to be built anywhere in the centre.

### ADDITIONAL WRITTEN EVIDENCE

### of Mr. A. E. Mirams, F.S.I., F.S.A., F.R.San.I., M.T.P.I., etc.

(*submitted after oral examination*).

In the first part of my evidence, I indicated that in my opinion it is now generally recognized that the provision of decent housing accommodation for the working classes is one of the problems which call for immediate attention in this country. It is clear that for some years there has been an annual deficiency in the town and island of Bombay between the number of houses built and the number required (see page 24, line 30 of the Memorandum of Evidence). It will be observed from the diagram shewing the growth of labour during the past 20 years that there has been an increase of total employees in factories in the Bombay Presidency of 100 per cent. Incidentally it may be noted that the number of children employed has during that period increased by 150 per cent. This growth of industry has naturally supplied private enterprise with an opportunity of providing reasonable living accommodation for the increased population of the larger towns but the new accommodation has not kept pace with the demand, with the result that overcrowding is steadily increasing. Now when private enterprise has failed to make adequate housing provision, the question is who is to do it; and it seems to me perfectly clear that employers of labour are not justified in encouraging emigration from the mofussil unless they are prepared to see that the employee has sufficient wages to prevent him from becoming a public nuisance. This may seem strong language, but it must at once be seen that the man who cannot maintain himself and his family in common decency is undoubtedly a public nuisance; or at any rate tends to throw an increased burden on the public purse, *e.g.*, the cost of preserving the public peace and law and order, and of remedial measures against insanitation diseases and epidemics. (A time may come when it may be found necessary, if employers of labour do not pay a wage sufficient to maintain life under decent conditions, to introduce Wages Boards as was done in England under the Corn Production Act.)

If this argument is taken to its logical conclusion, then it is perfectly clear that every employer of labour has some responsibility thrown upon him to see that his employees are properly housed. How far he alone as compared with the Local Authority is so responsible and how much of the burden he should bear are matters which it will be very difficult to arbitrarily define. But it would seem that to some extent at any rate, employers should be called upon either to house or contribute towards a housing scheme. This contribution could properly be based upon the number of persons employed by each factory owner. The employee for the purpose of this tax might be considered to be any adult male employee in receipt of not more than thirty rupees a month.

Assuming an average capital cost to house one family is one thousand rupees (inclusive of cost of land, cost of building, cost of amenities, such as play-grounds, schools, etc.), it would not be an unfair thing to ask the employer to contribute his share towards the housing of 20 per cent. of the employees. Taking 6 per cent. on the capital sum of rupees one thousand to represent interest on loan and sinking fund for repayment of same, the sum necessary comes to Rs. 60 per year per head of employee to be housed; and since it is proposed above, that the employer should be responsible for the housing of only 20 per cent. of his employees, the tax would come to one-fifth of rupees sixty or rupees twelve per head of employee per annum, over the total number of employees in a factory, assuming the employer has made no housing provision at the date of recovery of the tax. Employers of labour who have provided housing for 20 per cent. or more of their employees might be exempt from the tax. Employers who have provided for less than 20 per cent. will pay the tax on the difference between the number provided, and the 20 per cent. at Rs. 60 per annum per employee (or at rupees 12 per year per employee) on five times the number, *i.e.*, to say exemption from the tax will be given for five times the number of employees housed, and the remaining employees would be taxed at Rs. 12 per year per employee. This would in practice work as below :

| Total number of adult male employees in a factory earning not more than Rs. 30 a month. | Number housed by employer. | Number taxed. | Contribution at one rupee per head per month. |
|---|---|---|---|
| | | | Rs. |
| 500 .. | *Nil.* | 500 | 500 |
| 500 .. | 50 | 250 | 250 |
| 500 .. | 70 | 150 | 150 |
| 500 .. | 100 | *Nil.* | *Nil.* |
| 500 .. | 200 | *Nil.* | *Nil.* |

The legal responsibility of the employer would cease when he has paid the tax. And he would be considered to have provided working class housing when he lets a double roomed tenement which is sanitary and in every other way fit for habitation at a rent of not more than Rs. 4 per month. In Bombay the Municipal Commissioner might be the person who would decide whether a housing provision made by an employer of labour is adequate and whether the said employer is entitled to a total or partial exemption from the " Housing Tax."

The Local Authority should then fulfil its share by undertaking the provision of sanitary housing in suitable places with all the necessary amenities and of maintaining and looking after the labour colonies. And it would be for Government to accept their part of the responsibility either by guaranteeing the loan to be raised or advancing the capital at a low rate of interest.

The total number of male adult employees in factories in Bombay City at end of December 1917 earning Rs. 30 or less per month was 1,28,214 and the amount of tax recoverable per annum as suggested above would be Rs. 15,38,568. This would represent a capital sum of Rs. 2,56,42,800, and at 6 per cent. would be enough for the provision of 25,642 tenements, thus housing 1,02,568 persons. This would afford a very great relief to the existing condition. This accommodation would be insufficient to meet the full demand but at the outset the contributors would be entitled to accommodation for their employees in proportion to the amounts of contribution, and as near the factory as possible. But in filling future vacancies priority of application would be given preference.

The annual tax which represents 6 per cent. on the capital sum would go to meet interest on capital at 5 per cent. and sinking fund for repayment of capital within 40 years (1 per cent. of capital to be accumulated at 5 per cent). The cost of maintenance of the houses will be met out of a rent to be recovered from the persons housed. The charges for maintenance should not exceed from 2 to 2·5 per cent. of the outlay or Rs. 20 to Rs. 25 per year per tenement. Thus a monthly rent of Rs. 4 per tenement would amply meet the annual outgoings and provide a surplus which latter should be utilized for improvements of the labour colonies. Supervision over these colonies must be efficient without being rigorous. Overcrowding must not be allowed. Only genuine guests and relations of the occupant of a tenement should be allowed to occupy a tenement for a limited number of days, say eight days in a month. The colonies should be self-contained and should provide all the ordinary necessities of life, such as a temple, a chool, a bazaar, a dairy, a cinema theatre, a marriage hall, etc. Indeed they should be modernized and improved prototypes of the employees' old village. If this is aimed at the employees would be encouraged to settle down permanently.

The land necessary for colonies should be bought without delay as land values in and around Bombay are constantly rising owing to causes economic, as well as artificial (such as the Improvement Trust Schemes).

It would not be possible in all cases in Bombay to house the employees very near their factories owing to the prohibitive value of land in these localities, but large areas of cheap land are available not far from the mill centres at Worli and Matunga (see map)*; the latter district being served by a tram route. Arrangements for transport should be made by the Local Authority with the Railway and Tramway Companies for the running of special cars every morning and evening and the issue of cheap passes to factory employees. The cost of running electric cars inclusive of depreciation of rolling stock and permanent way, based on an average of three years prior to the war is 5·36 annas per car mile. The seating capacity of a two car train is 81 persons. Thus twelve annas a month per head for a distance of 3 miles equivalent to four annas per head per month per mile would cover costs.

It may be noted that the Great Eastern Railway Company in England can afford to run trains for workmen at a charge of one anna for a ten mile journey and make a handsome profit, the cost per train mile being two shillings and six pence.

At present in many cases the wives of the employees carry the meals of their husbands to the factories every day at the appointed time. This would not be possible when the employees would be living at a distance from their factories, but an easy solution seems to lie in the encouragement of licensed eating houses, where fresh rice and curry could be obtained. If factory owners provide the necessary accommodation within their compounds, the employees might arrange this amongst themselves on co-operative lines ; and there is no reason why this should not be as cheap or cheaper than present arrangements.

It may be argued that because in England no compulsory levy on factory owners for the purpose of providing housing accommodation is provided, it would not be fair to make such a levy in India. But I suggest that a comparison between the two countries will at once shew that this contention could not be borne out in fact. For the purpose of this comparison it would be equitable to consider the type of factory in Bombay which employs as a class a very large proportion of the working classes, *viz.*, the cotton mills, and discuss it in relation to cotton mills in England.

In the first place, it must be considered that the wages paid per operative in England are at *least* three times greater than are paid in this country. I know the efficiency of the English worker is superior to that of the Indian, but therein lies the opportunity of the Indian mill-owner, by improving the environment of his employees, to rectify this.

Then again the payment in this country by way of rates and taxes for municipal and national services are very much less than in England. I should like to have shown the difference statistically by a comparison between the rateable value per loom and spindle in this country with several mills I recently inspected in England, but I fear this could not be conclusive as the construction and age of the mills, the amount of machinery, the proportion between looms and spindles, in every mill varies enormously, *e.g.*, a mill which will hold 80,000 weft spindles will only hold 65,500 twist spindles and a shed which will hold 600 looms of 40" reed space, will only hold 400 looms of 60" reed space, while the value is the same, thus a definite rate per loom or spindle is impossible, but I am able and have shown in the following table in the case of 5 mills taken at random in Bombay, what the payments made in respect of municipal services would be if the same rates and taxes were imposed upon them, as are in force in Manchester. And here it should be noted that machinery in England is assessed to municipal taxation while in Bombay it is not.

The table also indicates that if my proposals for a contribution from factory owners are adopted, the payment made as the result of the addition of the contribution to the existing municipal taxes in Bombay, would still be far less than if the mills were assessed at the same rate as in Manchester.

| Name of mill. | Municipal taxes. | Proposed housing tax at Rs. 12 per annum per head of male adult employee earning Rs. 30 or less per month. | Total of columns 2 and 3. | Rates payable in Manchester at 8s. 7*d.* in the pound. |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
| | Rs. | Rs. | Rs. | Rs. |
| A .. | 14,358 | 18,000 | 32,358 | 52,118 |
| B .. | 9,158 | 16,284 | 25,442 | 54,976 |
| C .. | 5,646 | 11,472 | 17,118 | 47,702 |
| D .. | 2,274 | 10,008 | 12,282 | 33,836 |
| E .. | 41,414 | 31,956 | 73,370 | 132,909 |

---

* Not printed.

I am convinced that if my proposals are accepted an enormous improvement will be effected in the condition of the working classes of this country.

In conclusion I briefly summarise my recommendations :—

I. The only way to improve bad housing conditions that exist, is to improve the conditions ; that is to say

(1) to compel the owners by legal enactment to allow no room to be occupied that is not sanitary,

(2) to keep the rooms sanitary, and

(3) to penalize overcrowding.

II. The very least the G. I. P. and B. B. & C. I. Railway Companies can now do is to provide accommodation for their employees outside the island, and I strongly recommend that action be taken to enforce this being done.

III. The simple plain type of cottage of ground floor, or at most two storey construction is what is needed in suburban localities to meet modern requirements.

IV. I know of no better way in which cheap housing can be provided than by the Local Authorities acquiring large areas of suburban agricultural land at wholesale prices, developing them and offering building plots at very low rentals on suitable conditions.

V. In many instances owners of factories find it difficult to obtain land by private treaty. I recommend that Government should acquire lands for factory owners at normal prices and lease them for long periods at low grounds rents or resell them outright to the person undertaking to build working class accommodation. Where the case merits it, Government may see its way to forego for a substantial period some or of the non-agricultural assessment on such lands. This would be a direct encoura ment to the builder, who as a *quid pro quo* would of course be required to subscri to certain simple building regulations, safeguarding the development.

VI. A suggested specific for mitigating the poverty of wage earners is the system of operation between the employer and employed. Profit sharing has been tried wi considerable success in many industrial and commercial undertakings. To a limit extent this is what I am pleading for when I ask the employers to spend somethi more than they have in the past, on improving the environment of their own peopl

VII. I recommend that municipalities should grant concessions or exemptions in respe of rates and taxes, at any rate for a term of years, on houses built for occupation the working classes. I have come to the deliberate conclusion that as far as the poo classes are concerned salvation cannot be obtained unless the municipalities of towns take definite action themselves to erect houses and also encourage private ent prise by granting concessions such as I have mentioned.

VIII. I am strongly of opinion that whoever dishouses a number of persons compulsor should be compelled to provide before demolition, housing accommodation for least 50 per cent. of the persons dishoused.

IX. It is increasingly evident that the education of the poorer classes must go hand hand with the provision of good housing, but

1st—The education must be elastic enough to enable the discovery of aptitude a capacity ;

2nd—Its aim should be to reveal as far as possible to the semi-dormant mind a r idea of the conditions under which it lives.

3rd—It should aim at the development of wholesome mental interests, and a rob health of body, in short the training of character.

X. I recommend that the provision of social institutes for working men should encouraged.

XI. As a remedy for drunkenness, change the environment and the old school will a natural death by effluxion of time.

XII. As remedies for indebtedness I suggest :—

(*a*) Registration of all money-lenders.

(*b*) Limitation of interest.

(*c*) Imposition of " Dam Dupat " (*i.e.*, that no money-lender is able to recover m than double the amount lent).

(*d*) Legislation somewhat on the lines of the Dekkhan Agriculturists' Relief Act, 18 for all persons, whether agriculturists or not.

**XIII. The opening of co-operative shops on a large scale should be assisted. Facto owners who are not disposed to start co-operative shops themselves, I urge to t the licensing of provision shops within their premises.**

## WITNESS No. 330.

### MR. G. H. THISELTON-DYER, M.A., A.M.I.C.E., *Mechanical Engineer to the Government of Bombay.*

### WRITTEN EVIDENCE.

### *Assistance in Marketing Products.*

**Commercial museums.**

Experience of commercial museums is confined to those at Kew and South Kensington in England. It may not be known that the museums at Kew are largely used by manufacturers as well as by students of economic botany.

In these museums may be seen the natural products of all countries side by side with the manufactured goods in all stages which are made from them.

The museum of woods is a striking example where almost every kind of wood may be seen with examples of their use.

The engineering and science museums at South Kensington are of the greatest value from educational and commercial points of view. The absence of museums in this Presidency is most striking and it is thought that great benefit would accrue from the establishment of such institutions in the big towns.

A collection of woods, grasses, fibres, stones and other materials found in and near the Bombay Presidency with suggestive examples of their use, cost and distribution would, if situated in Bombay, be both stimulating and useful.

Small museums should be found in all large towns where exhibits of local and cottage industries and products could be shown. Examples of well made furniture and other useful articles should be kept to encourage craftsmen and in addition a certain number of modern tools with prices.

**Government lists of imported articles.**

It is doubtful whether the publication of lists or the exhibition of articles imported by Government would be helpful as the majority of these goods are stocked by shops in India to meet the demands of Municipalities, Native States and Local Boards who require similar articles.

**Industrial exhibitions.**

In this respect it is thought that periodical exhibitions on the lines of those carried out by the Royal Agricultural Society of England would do good.

Such exhibitions of really useful, well tried labour saving devices, products, demonstrations of processes of manufacture, etc., enable many people who do not travel to see these things and watch them working. It is no good taking round the latest fad or toy engine. These will only give disappointment and do harm. Prizes might be given to local craftsmen for good work exhibited, such as a well made door or table or a good forging.

**Purchase of stores by Government departments.**

There are many who advocate considerable changes in the rules for purchasing stores with the idea of giving officers great freedom, facilitating local purchases and assisting Indian industries.

It is felt, however, that as local industries increase more and more orders will have to be placed in India, but safeguards with regard to suitability, inspection and price will have to be introduced in order that the high standard of quality rightly insisted on by Government may be worked up to.

At the present time there are few articles of local manufacture which come up to the standard of goods supplied by the Director General, and it is unfortunate that the tendency of Indian manufacturers appears to be to quote prices which closely follow the prices paid for goods obtained on indent to London, although it is assumed that the cost of production is lower.

It must be remembered, also, that officers when ordering locally can only be guided by catalogues or quotations in the majority of cases and in consequence are likely to purchase unsuitable or inferior articles under the impression that they are getting what they require.

Under existing circumstances much time is taken up obtaining prices of goods which are to be indented for, and it is also often difficult to know the best firms to approach for quotations or advice. Rate lists and the Director General's yearly running contracts do not appear to be available in many offices, and the question whether the price of local goods is favourable is difficult to decide.

I discussed with the Director General of Stores in late 1915 an idea of establishing a sort of branch office in India through which all indents would be sent before transmission to London.

The function of this office would be to—

(1) Check all indents and see if they are sufficiently clear and descriptive so that future cables and correspondence may be avoided.

(2) Maintain a list of current prices, catalogues and general information so that indenting officers could obtain all particulars when preparing indents.

(3) Obtain a thorough knowledge of local manufacturers and their capabilities so that advice could be given when and where goods should be obtained locally.

In this connection running contracts could be established in India for the supply of certain articles which should include many petty stores which are now purchased by executive engineers for their district stores.

(4) Indents for local purchase should be placed with this office and a staff of inspectors would be maintained to test and see that quality is up to standard.

There are many useful functions which such an office could perform, and it is thought that as industries increase and more local purchases are made it will be absolutely necessary to have a Government buying agency or agencies in India on the lines indicated above.

The present system of inspection of local purchases by the Railway Board is not satisfactory inasmuch as the articles which are inspected are limited, and new manufactured stores, ordinary stores and articles not manufacturerd in India cannot be inspected by this department.

Tests can be carried out at the Government Test House, Alipore, but the whole system of inspection and testing has to be arranged for by the officer ordering the goods, which means considerable trouble and delay.

With regard to changes in the rules it is hoped that the following draft rule, which I understand is still under consideration by Government, will be brought into force.

The establishment of more branches of good British manufacturing firms will reduce the number of agencies and, as far as engineering is concerned, must open up a field for the employment of Indian engineers with college education. Any branch of a firm doing business in India successfully requires an office staff, draughtsmen, erectors and fitters to put up the machinery and ultimately, repair works which it is probable will develop into small factories for the manufacture of parts and even complete machines.

The draft rule referred to is intended to be No. 3 (c) of the Stores Rules.

Plant and machinery may be purchased from branches established in India of manufacturing firms of repute which are borne on the list of the Stores Department of the India Office, subject to the following conditions :—

(i) That the branch firm maintains a staff of expert mechanics capable of erecting and maintaining the plant and machinery required, is approved by the Government of India and is included in the list of firms approved.

(ii) That the actual price of the goods (exclusive of any expenditure representing cost of erection by the firm) is as low as that at which articles of the *same make* can be obtained through the India Office.

(iii) That the cost of the supply does not exceed the limits prescribed in rule 13 for purchases made under rule 5.

### *Training of Labour and Supervision.*

Improvement of workmen's efficiency.

To improve the efficiency and skill of workmen I think Government might help by recognizing trades such as carpenters, blacksmiths, stone masons, plasterers, painters, etc., and take some really skilled representatives into permanent Government employment. These men would act as working foremen on big works, set a high standard of work and help other men to know and carry out good work in addition to affording a valuable stimulus to other men to obtain such appointments. At the present time many skilled workmen have never seen good work but there are numbers who can do excellent work if they are closely supervised and encouraged.

Government should set an example by insisting on *good* work in every branch of construction, no matter whether it is a 1st, 2nd or 3rd class building.

Industrial schools.

It is understood that industrial schools have been a failure in India but it seems possible that some system might be devised to make them successful. Possibly if the boys are paid for what they make and receive sufficient encouragement to make them keen, a different state of things might be hoped for. At any rate, further experiments might be tried.

Control of education.

It is probably best that all educational institutions should be under one department, and the Education Department, provided it is reinforced with technical advisors and inspectors, has the necessary machinery for carrying on such work. Technical advice would be given by officers of the Industrial Department working in conjunction with special technical education inspectors belonging to the Education Department. No form of dual control is desirable.

Training of supervisors.

Supervisors and skilled managers require a course of practical training on works after leaving school or college. Each large Government work should have several apprentices or pupils attached and in addition arrangements could be made with firms and railway works to take a limited number, but in all cases the man directly responsible for training the pupil should be paid a premium, otherwise he will not interest himself in the students.

Of recent years there has been much improvement in the courses at engineering colleges and they have become more practical, but it is thought that, particularly with regard to the Poona Engineering College, the whole atmosphere of the place savours too much of the University and not sufficiently of the hard life which engineers have to lead. Technical college boys should be trained by men who have spent some time in or on works and not by pure Professors, as it is particularly necessary in this country (where it is so difficult to arrange for practical training after college) for students to realize at an early age that success can only be achieved by hard work with *hands* and brain.

It is hoped that in time every school boy will be taught a little hand work such as carpentry, model making, gardening, collecting, etc., so that some of them will have useful hobbies in after life. How many students at the Engineering College amuse themselves in their spare time with a box of tools or have a useful hobby?

Mechanical engineers.

The want of uniformity in the standard of certificated engineers and also in the Acts relating to boiler inspections requires immediate action. There should be one Boiler Inspection Act for the whole of India and one standard for certificated engineers.

In Bombay engineers in charge of steam prime movers are required to have a 1st, 2nd or 3rd class certificate according to the size of the plant. Engines for agricultural purposes are exempt and do not appear to suffer.

Now that mechanical engineering is well established in India it seems very doubtful if this system of compulsory certificated engineers should be continued. It might well be left to the discretion of the owner whether he employs a 1st, 2nd or 3rd class man. The 3rd class men are practical but many have not sufficient education to advance although they are good useful engine drivers. Many 2nd and 1st class men have nothing but a little bad theory, and knowing very well that they must be employed according to the Act, make themselves comfortable on high pay and leave all the work to 3rd class or uncertificated men.

### *General Official Administration and Organization.*

Provincial organization.

Boards of all descriptions unless constituted like the Local Government Board or Board of Trade in England (which never meet) are the surest way of preventing progress especially in India where leave and transfers bring such frequent changes.

The development of industries in a province should be directed by one man with a capable staff. Such a man should have a general scientific education followed by a certain amount of business training which would enable him to grasp the rudiments of technical problems and know what action was necessary.

He would be able to direct the lines on which research or experiments were needed and know where to go for advice. It is probable that there is quite sufficient scope for a director in each province as each director would have to be in close touch with local conditions and men. An Imperial Department would never be able to fulfil these conditions in the same way.

### *Organization of Technical and Scientific Departments.*

Expert advice.

The Agricultural Engineer to Government already gives technical advice but the Mechanical and Electrical Engineering Departments do not undertake private work without permission.

The Mechanical Engineering Department is newly constituted, and it is hoped that after the war it will be strengthened so that advice can be given to assist industries.

These departments could then work in conjunction with but not under the control of a Provincial Director of Industries who would have on his staff any additional experts that he found necessary (such as a good chemist) and be directly responsible to the Provincial Government.

Experts should be engaged on adequate salaries and on a temporary basis, and as they will be older than the majority of men coming to this country, they should be provided with a good Provident Fund in preference to a pension.

Study of foreign methods.

Encouragement should be given for all Government technical officers to keep up-to-date by going on deputation whenever they are on leave. Deputation for studying works, etc., is now granted in special cases and is most valuable but the system by which sanction has to be obtained from the Secretary of State is rather cumbersome and takes a very long time to obtain.

Reference libraries.

Government have always sanctioned expenditure on technical and scientific books which are required in this office but there is room for a good reference library in Bombay which could be administered in connection with a museum.

### *Other forms of Government Action.*

Certificates of quality.

Portland cement and steel are both very important products which may vary considerably in quality and it is desirable that Government certificates should be obtainable by purchasers. Arrangements could probably be made with the Railway Board, who are large consumers of steel and cement, to extend their inspection to the total output of these two articles.

### *General.*

Suggested enterprises.

Cheap power will be required more and more in the future and the present tendency in the Bombay Presidency (apart from hydro-electric power) is to use either fuel oil or kerosene oil to work oil engines.

Both these oils are imported and the development of home made fuel is neglected.

Charcoal is a most excellent fuel to use in suction gas producers and it is thought that with the large amount of small and waste timber found in parts of this Presidency a useful industry could be worked up by encouraging the manufacture of charcoal on modern lines, possibly with the recovery of by-products.

Cheap building materials are necessary to assist the development of towns, town-planning schemes, etc. The bricks made in the Deccan are not good but there is brick earth which will make excellent bricks if modern methods are used. There is a big field for enterprise in this direction.

Floor and roof tiles are imported in vast quantities, yet it is understood that excellent tiles have been made from local earths at the School of Art in Bombay and the whole method of manufacture is ready and waiting for somebody to take up on a commercial scale.

The salt industry which is under Government control requires thorough investigation by a competent chemist as there are a large number of different useful chemicals which can be extracted from the waste liquor.

A short time after the war began magnesium chloride (used in spinning mills) became very scarce owing to its foreign origin. An Indian chemist set to work and produced it in commercial quantities from the Kharaghoda waste salt liquor at a small factory he put down in Ahmedabad. It is not known how he is progressing now but he was severely handicapped at first by taxation on the liquor he used and terminal tax in Ahmedabad.

Many other articles, such as glass, buttons, apparel, hardware, matches, textiles and toys, are imported in enormous quantities especially from Japan. There must be some cause why these things cannot be produced in India in sufficient quantities and of proper quality to satisfy, at any rate, home consumption.

## ORAL EVIDENCE, 23RD NOVEMBER 1917.

*Mr. G. A. Thomas.* Q. You say, "I discussed with the Director General of Stores in late 1915 an idea of establishing a sort of branch office in India." Then you enumerate the functions of that office, and the fourth function is "Indents for local purchase should be placed with this office and a staff of inspectors should be maintained to test and see that quality is up to standard." This staff of inspectors will be under the officer representing the Director General of Stores ?—*A.* I think so, in the same way that they have their inspectors in London.

*Q.* When they inspect the articles of local purchase they will be under an officer of the Government of India ?—*A.* I am not quite sure how it will work out. My idea was that the Director General of Stores is a sort of agent at home and he would have his local agent out here. He will purchase things from home or purchase them out here. If he cannot get them out here he will forward the indent home to the head office.

*Q.* And this officer will be serving two masters ?—*A.* I think it will be much better if he is quite distinct.

*Q.* Will there then be two officers, one officer inspecting the local purchase of stores and another to represent the Director General at home ?—*A.* The Director General of Stores inspects all goods that come out here. He would have his local agent at Bombay or wherever it was, and the latter would have his staff of inspectors who would inspect the things he purchases locally. If an Executive Engineer in a remote district orders a thing from Bombay he cannot see it and inspect it, and he is not a good buyer as a rule because he does not know where to go. If he can write to this office in Bombay and say I want such and such goods, this office would know exactly where to put their finger on them in India or else if they could not be got in India, an indent would be sent to London.

*Q.* Would it not be better to have an Indian Director General of Stores in India, in Bombay or Calcutta ?—*A.* I do not think it will matter very much. My idea is to concentrate all indents in one man. I have to inspect a certain number of indents, and in almost every case there is a great deal wrong with them. They are not properly explained. The complaints that we do not get proper things from the India Store Department are partly due to the fact that the indents do not accurately describe in detail what the officers want. My idea was to have a man in Bombay. All indents would go to him and be scrutinized, and he would see whether it was possible to understand them and whether all was in order as regards quantity, price, etc. He would either send the indents home or buy the articles locally.

*Q.* Cannot the officer making the specification make it clear what he wants ?—*A.* Not in every case, because it requires considerable practice to specify details. I have been told by Government to scrutinize certain of these indents, and as an example, one indent for cast iron pipes did not specify the working pressure or the thickness of metal required.

*Q.* You have made indents yourself ?—*A.* I have not made many, but have been responsible for specifications in a fair number.

*Q.* Have you been satisfied with what has been sent out ?—*A.* I have been more than satisfied. One particular case I could give as a very good example of the trouble taken. I was very anxious to get a particular kind of oil engine. I specified an oil engine in the indent and asked specially whether it could be supplied from a particular maker as they do not as a rule like being restricted to a particular maker. They wrote back and said that they would not supply this maker's engines at all, so I wrote and asked why. A report was received stating that there had been great trouble with the question of spare parts with this maker's engines which were not interchangeable, and on that account the Stores Department had given up ordering this particular make of engine. Another maker's engine was recommended, of a similar type, which has done very well. That is the way they protect us, and it is most valuable.

*Q.* The fault lies not so much on the Director General at home for sending out things which were not ordered, as on the people in not ordering what they want ?—*A.* I think to some extent. I spent a day in talking with the inspectors in London, and they showed me indents, and said "What are we to send for these things ? They are not properly described. Are we to write or cable about small items like these or shall we send what we believe to be required ?"

*Q.* What you really want is a responsible officer out here to inspect all the indents, and it does not matter whether he is under the Director General in England or under the Government of India ?—*A.* Yes. I think the officer should be well in touch with home prices, home specifications and the Director General's contracts. I ask the Director General to send me out all useful running contracts for my branch of work, and I have also got a complete list of his specifications. Very few officers seem to have got these in their offices.

*Q.* Would you have a permanent man out here, or would he have to be sent out here for short periods ? If you have a permanent man he will have to rely entirely upon catalogues. Would not the man get out of date here ?—*A.* I was thinking that he would be absolutely fed with information from London, as it were, otherwise he would tend to get out of date unless he went home and had a good look round periodically.

*Q.* The second function of the office is "Maintain a list of current prices, catalogues and general information so that indenting officers could obtain all particulars when preparing indents." He will receive this from the Director General's office at home ?—*A.* Yes.

*Q.* Is not such a list maintained in India at present by any one ?—*A.* I do not know of one.

*Q.* And there is no place you can go to and see all the catalogues and price lists ?—*A.* I am trying to start that in our new central workshops. We have got the idea of having a proper engineering catalogue library. Executive engineers and others sometimes write now to know where to get a thing and we are generally able to help them. I hope to increase this useful side a good deal, and get an up to date catalogue library. Our difficulty is to know where to buy in India, and for this reason we are not good buyers. In this connection museums would be of assistance. My idea of a museum is not so much for exhibiting things that come out from home as for exhibiting things that are made in this country, so that we can know where we can get them. As an example many brass articles, door hinges, bolts and a lot of other things are made in India and they are made in many places. Some of them are very well made, but the difficulty is to know where to get hold of them.

*Q.* This representative of the Director General of Stores—he would be in charge of this museum and be responsible for keeping it ?—*A.* Yes. That is a very good idea.

*Q.* He would also know whether a thing should be bought in India or at home ?—*A.* Yes.

*Q.* He would have to have a fairly large staff under him ?—*A.* Yes. He would have a very competent inspecting staff.

*Q.* He will be in touch with the main factories in the country ?—*A.* Yes.

*Q.* He will probably have to send a man to inspect them ?—*A.* Yes.

*Q.* It is not sufficient to see samples of products, but to see the things actually made there ?—*A.* In certain cases articles can be ordered from samples and sent to the depôt to be inspected and passed or rejected. Large and complicated articles will have to be inspected during manufacture.

*Q.* Would he actually pass the things ? Would he have a testing house ?—*A.* Yes. He would use the existing testing houses, but I think it would be advisable, as the business grew up, to have his own testing house.

*Q.* You also recommend the establishment of more branches of good British manufacturing firms in this country. What is their position in relation to this Government official ? —*A.* Yes. I think he would buy from them.

*Q.* Would the indenting officer be able to go direct to these branches or would he have to go through this man ?—*A.* Personally I should prefer that he should go through this man.

*Q.* Everything in this country should be bought by that individual ?—*A.* I think so. My experience is that we are not good buyers in the Public Works Department, simply because we have not got the time to go thoroughly into the question and to know where we can get the cheapest market. If we have got somebody who has got the information at his fingers' ends it will be good. One of the things that must be done here is inspection.

*Q.* He will have to have branches ?—*A.* I think there will probably have to be branches at Calcutta, Bombay and possibly one at Madras.

*Q.* He would be the controlling authority in India for the various branches working here ? —*A.* There will be a head branch and sub-branches.

*Q.* As regards the training of labour and supervision you want to have a permanent staff of Government blacksmiths, etc. What is the system at present when a large work is undertaken ?- *A.* To give it out in petty contracts.

*Q.* Government would be their own contractors ? Would they keep the whole staff necessary for any class of work ?—*A.* I think in certain cases they would be their own contractors. I had in my mind that these men would be more of the type of foremen supervisors similar to those at home. When letting work out for contract it is quite usual in England to take on a good class of bricklayer and put him to supervise the work as clerk of the works.

*Q.* He will supervise the contractor's work ?—*A.* Yes. My idea is to try to increase the dignity of labour. If people can be made to look up to the man who uses his hands I think it will be better.

*Q.* You think that all educational institutions should be under one department ?—*A.* I think it is better so.

*Q.* Would you have a purely technical college only instructing in manual labour under the Education Department ?—*A.* I think that if it is under Government it is essential that it should be under one department. There is already a system which includes accounts and inspection.

*Q.* You would require a different class of inspector from one of a purely educational institution ?—*A.* Certainly.

*Q.* They could not be interchangeable ?—*A.* There are different classes of inspectors at the present time.

*Q.* I do not quite see why there should be dual control. If you put technical education completely under the control of the Industrial Department, how would dual control come in ? —*A.* You mean absolutely apart ? Would you take away the Engineering College from the Education Department ? I think things should be co-ordinated together. Of course, there is the case of the Victoria Jubilee Technical Institute not being under the Education Department.

*Q.* Would the placing of that under the Education Department be an advantage ?—*A.* I do not know. It seems to work very well now.

*Q*. It is always held as a model institution of the kind in India and it is free from the Education Department entirely.—*A*. I do not really see very much reason why technical education should not be separate, but I do not think that any dual control is wanted.

*Q*. You referred to the engineering college just now. Your opinion is that it is rather too academic, too theoretical ?—*A*. Yes.

*Q*. And you think that it is wrong that a professor should be a pure professor. What would you substitute for the present class of professors ?—*A*. The sort of man that I want to get hold of is a man who is a real live engineer, the man who has been in works, in touch with commercial engineering, and who is always bringing the practical side of engineering before his students. I want real live engineers, who will infuse students with an absolute desire to get into the life of the engineer.

*Q*. You mean that they should have been practical engineers before they take up teaching ?—*A*. Yes.

*Q*. They would take up teaching at quite a later period of their life ?—*A*. I do not see any great disadvantage in that.

*Q*. How would you recruit the staff that you have in mind ? Would you recruit them from practical engineers at home at a later age than at present ?—*A*. Yes. I do not know the average age of the professors coming out.

*Q*. I should say 25 to 28.—*A*. Some of them are over 30.

*Q*. Would they have gained better engineering education at home ?—*A*. A man at the age of 30 or 35 would have got all the experience in practical engineering that is necessary. I think it is a pity to take a man straight from the university and bring him out to teach engineering in this country.

*Q*. And you think that the course at present in existence in the Poona Engineering College is not best adapted to turning out efficient engineers ?—*A*. You have got the College of Engineering established and you have got to run it, and you have got to make the best of it.

*Q*. You would not like to keep bad things ?—*A*. I do not know what is best. University degrees in engineering have been started, and I do not know how the whole system can be remodelled.

*Q*. Could not anything be done to make it a more live thing ?—*A*. Yes. I think more practical men are wanted, work should be for longer hours, long vacations should be done away with and the place must be made more businesslike.

*Q*. You are a member of the board and you are aware that there is a proposal to give two classes of certificates, one at the end of the purely college course and the other at the end of a subsequent two years' course of training in an engineering shop. Do you think that the two years' training in workshops should be subsequent to the course in the college or antecedent to it or simultaneous with it ?—*A*. This proposal applies to students in the workshop classes only. My impression is that it would be better to have shop training after the college training in order to get rid of the college atmosphere and get really into practical work. If the works training comes before, I think it will interfere with the ground work of education in the boys, and if simultaneously, I do not think it will be possible to arrange with works to take in the boys for a few hours a day.

*Q*. Do you think that Poona is a suitable place for a college of engineering ?—*A*. Probably from a health point of view it may be considered slightly better than Bombay. There is plague in Poona and fever in Bombay, but I should think that there is little to choose between the two places.

*Q*. Would it not be better to locate it in the neighbourhood of the Victoria Technical Institute and engineering works ?—*A*. That is a good plan.

*Q*. And put it under the same control ?—*A*. There is the university control. Would you do away with it ? It is not practicable to have both, a board and the university in control.

*Q*. At what age do boys complete their present course in the college of engineering ? About 22 ?—*A*. You mean those who take the university degree ? It is older than that. I have been told 24.

*Q*. Where do they come from ?—*A*. They pass the School Final.

*Q*. They have had practical experience before they enter the university ?—*A*. No. They get a good lot of practical experience there, but they can never get in a college workshop what a commercial workshop gives. In a college workshop if a bar is turned up in a lathe and is a little over or under the exact size, it is quite easy to make the hole the bar fits into, a little larger or smaller to suit. If this is done in a commercial workshop the bar is spoilt, and there is trouble with the foreman. It is difficult to realize in a college workshop that small things matter, whereas in works there is a feeling that a thing made is of use, and there is often the satisfaction of seeing it doing work as part of a machine.

*Q*. Have you any idea what becomes of the students after they get their degree ?—*A*. They all get jobs, but I do not think that they get such good jobs as they ought to. It has been asked: why alter things if all the students get jobs ? I do not think that is the right way of looking at it. We have got to give them a training to suit them for better jobs, so that they may be able to work up things and improve engineering work in India.

*Q*. Supposing there is a supplementary two years' course in some engineering works after they finish their course, do you think that they will go through it voluntarily just for the sake of getting better certificates ? Would it increase their market value ?—*A*. They will go if they can afford it. I think it ought to if they are properly looked after. I am afraid a lot of them would not like doing it, because I think the financial question comes in with many of them. I have worked on the mechanical engineering B.E. degree course at the Engineering College, and it is about to be placed before the Faculty of the Senate. Under this course the students will be about 27 at the time they are ready to take up a job which is a high age, and I do not know whether they can last out such a long period and not earning money.

*Q*. When you state that every school boy should be taught a little hand-work such as carpentry, etc., I do not suppose that you mean to have carpentry and so on introduced into every primary school ?—*A*. I know it is impossible. It is an ideal which one hopes to attain to one day.

*Q*. Would you introduce the Sloyd system ?—*A*. If we can gradually bring it about little by little and get the use of the hands brought into education, I think it will be a very great thing.

*Q*. I see that you have the greatest contempt for boards of all descriptions because you say that they are the surest way of preventing progress.—*A*. I am afraid I am drastic over that.

*Q*. Would you include an advisory board in that statement ?—*A*. I should certainly in the case of the Poona Engineering College Board because they meet twice a year, and it is impossible to remember what happened at the last meeting. They are never in touch with the place. I am on the Board of the Victoria Jubilee Technical Institute and we meet once a month. We have got a very excellent Secretary, Principal and Chairman, and I think they do most of the work and practically run the place. I do not know whether the board does a great deal of good. Some members never turn up to a meeting.

*Q*. In the organization of technical and scientific departments, referring to your own department, that of mechanical engineering, you say, " It is hoped that after the war it will be strengthened so that advice can be given to assist industries." Then you say, " These departments could then work in conjunction with but not under the control of a Provincial Director of Industries." Supposing the Director of Industries wanted to have the advice of the mechanical engineer and asked for it, do you say that the mechanical engineer should be able to refuse to give it ?—*A*. No.

*Q*. He should be compelled to give it ?—*A*. If it is laid down by Government he should do so. It would not be possible for him to be under two masters as it were, but if it was laid down that he should give all help and advice to the Director of Industries, that ought to be sufficient.

*Q*. Do you think that it would be a more satisfactory arrangement for the Director to have an expert of the same nature under him ?—*A*. I think that if the cost can be defrayed, it will be most satisfactory for the Director to have his own technical staff. If the scope of the Director of Industries is going to be big, my proposal is not feasible, and he must have his own man. I thought it might be possible to help as a beginning.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q*. In the second paragraph of your note you say, " In these museums may be seen the natural products of all countries side by side with the manufacturing goods in all stages which are made from them." You think that such museums at big centres like Bombay and Calcutta will be useful ?—*A*. I would try and work them in smaller places as well.

*Q*. Will they be more successful in bigger places ?—*A*. Yes. There will be big museums in bigger centres and branch museums in smaller centres.

*Q*. As regards goods which you order out from the Stores Department, how many months do they take to come here ?—*A*. It entirely depends on what it is. I think from three to six months, but articles which have to be specially made naturally take longer. It must be remembered that the Director General has got to start the whole purchase. He gets indents and has got to get quotations, tenders, and then he does not buy a ready made article as a rule. He likes to see every bit of that article and put his mark on it. The machinery which comes out here will be seen to have every part stamped by his Inspectors. It practically means that an engine has been specially made.

*Q.* Do you get the articles exactly as you ordered, or sometimes do you get a slightly inferior article ?—*A.* If the proper specification is given, and it is made clear exactly what is wanted and what it is for, the right article is sent.

*Q.* Does it not take a long time before you get the ordered goods ?—*A.* I do not think so considering what they have to go through. It seems a long time to us, but the Director General has got to get particulars, etc.

*Q.* Do you get the particulars yourself or do you sometimes take the assistance of big machinery agents here ?—*A.* We constantly make use of the agents and branch firms out here.

*Q.* And sometimes you specify the makers too ?—*A.* It is usual to specify a particular make or other make of equal quality. The Director General does not like to be tied to one maker. He is influenced to think that undue preference is being given to one firm.

*Q.* About the brick factory, have you seen any bricks made by the Bombay Brick Company ? Are they good ?—*A.* Yes. Kalyan bricks are very good also.

*Q.* In the last but one paragraph of your note you say about magnesium chloride being prepared from waste salt liquor in Kharagoda. Do you think that if the duty on liquor is removed that industry will thrive ?—*A.* I heard about this salt industry at Ahmedabad and went and saw it. They complained that they had to pay liquor duty and that they had to pay a terminal tax as well. When making experiments and using a very wasteful plant, it struck me that there should be some machinery to help them during the early stages. Early in the war there was a great scarcity of magnesium chloride and attempts were made to manufacture it, but in this case an Indian Chemist succeeded in separating it from the waste salt liquor.

*Mr. C. E. Low.*—*Q.* Do not the existing forest museums show examples of the use to which wood can be put ?—*A.* I do not think so.

*Q.* They do in some cases ?—*A.* I do not know. I have only seen a small museum at Poona. The Public Works Department do not know much about the different woods that are grown in the Bombay Presidency and the forest people cannot give much information about their use. What I want them to do is to get the different kinds of wood in a museum, have them cut up and show the use to which they can be put.

*Q.* There is just one point I would like to ask you with reference to Mr. Thomas' question about the Government buying agency for stores. Do you think it would be desirable to have an agent of the Secretary of State exercising certain functions in this country ? Don't you think it will cause trouble ?—*A.* I have never looked at that aspect of the thing.

*Q.* Which do you think would be most likely to be in favour of purchasing Indian manufactures, an agent of the Stores Department of the India Office, or an agent of the Government of India ?—*A.* I think any man out here would do his best for the Government. Why should people want to send home if an article can be purchased out here ? It is possible to get a man like that.

*Q.* This business about these branch firms—it is more or less hung up owing to the war—would it be discordant with the other idea ?—*A.* I do not think so, because the more branches there are the better.

*Q.* Do you think they might eventually take to manufacturing here ?—*A.* I think they would. I think it would follow.

*Q.* With the development of Indian steel and iron industries ?—*A.* It is bound to come. It starts with repairing work. We cannot send home for every bit of repair work.

*Q.* You deal with the extreme importance of building up a class of skilled Indian foremen which does not exist at present to a large extent,—men in charge as foremen in engineering workshops.—*A.* Yes.

*Q.* Have you any idea of how it is done in England ?—*A.* It is a survival of the fittest. A man who shows considerable aptitude at his work and who has also a certain amount of control among other men is very often picked out for trial. Sometimes he is not a success, and he is put back on his machine again. Another time a very good man may be found.

*Q.* He is the man who is to a large extent responsible for seeing that the machinery in the works is fully and economically used ?—*A.* Yes, and he also shows other men how to do a good job.

*Q.* What amount of education has a man of that sort got ?—*A.* In England he studies till he is about 14 and then goes into works for his apprenticeship and then becomes an improver. Some of them attend technical classes also during the time they are apprentices.

*Q.* The Indian fitter does not take to night schools at present. Has he any means of doing so?—*A.* I think that after a day's work in India a man does not feel inclined to take classes in the evening. Night classes have been tried but were not successful.

*Q.* What class would you draw these men from?—*A.* From the mistry class. I do not consider that these men should be "educated men" as they understand the term at home. It is wasted education. I want to get the working class. They do not want very much education beyond learning to read and write and do arithmetic. After that let them become skilled in their profession. We are taking too many educated people and giving them a smattering of engineering and turning them out as engineers. It is all for the worse. It is a mistake.

*Q.* Have you any definite suggestion as to what should be done to the existing fitter to bring him up to what we want?—*A.* There are plenty of machine hands but very few fitters. A very long training is needed to become a good fitter, and it is necessary to start very much younger than the technical college boy. The best plan is probably to try and train the sons of the mistry class.

*Q.* Bring the man as an apprentice under some definite system of training in this country? *A.* Yes.

*Q.* I gather that you do not approve of an advisory board for the Director of Industries.—*A.* I do not care about boards in this country because it is so difficult to get them to meet and get people to take an interest in the work. A board meeting is summoned and the Chairman is in Sind, some members in Mahableshwar, and so on. When the board does meet together, members say there is very little time to waste because they have important appointments and they hope that the agenda will be gone through quickly.

*Q.* What do you think about a board of directors for industrial concerns?—*A.* They are paid. A Government official has plenty of work to do and in addition is put on a board. It does not make any difference if he is paid or not. He has no time to spare. If there are only two or three meetings a year the members get absolutely out of touch with the work.

*Q.* What about a board like the Improvement Trust or the Port Trust? They are paid.—*A.* They are paid a small fee. I do not suppose that makes much difference. When there is a permanent staff with a paid chairman the board is looked upon as a kind of trustee to see that the chairman does not run amok.

*Q.* You will have a permanent man as Director and place him under the Department of Industries? *A.* Yes.

*Q.* And you are opposed to the idea of an advisory board to such an officer?—*A.* I do not think it will do him very much good. That board will be useful if you do not want to progress.

*Q.* If you have an engineer under the Director of Industries, would he not be duplicating the work of the Agricultural Engineer?—*A.* I think the Agricultural Engineer has got quite enough work to do and the man who runs the industries branch of engineering would find the Agricultural Engineer's work too much for him.

*Q.* Would they both be under the same department?—*A.* If there is an engineering staff it is probably better to concentrate it.

*Q.* What is your opinion as regards industrial experts engaged by Government going in for private work, for private consulting work?—*A.* It is liable to become very dangerous. They are very apt to use Government as a stepping stone to work up a reputation. Then there is the danger of people coming and asking for help privately for a fee, and eventually most of the time is taken up with such work and Government work suffers. I do not think it is a bad plan to give a little encouragement by allowing fees to be taken in special cases, but I do not think that it ought to be given too often.

*Q.* In a department where advice is given by such a man as his official duty for certain kinds of work to small people, how would you discriminate in the case of private consulting work between the above class of cases, and the kind of man from whom the expert would be able to accept a consultant's fee? The point is whether this man should be made to take up private consulting practice. The presumption would be, if a larger man came along with a bigger job, this man might take him on as a private consultant. Do you think that that position will raise any difficulties?—*A.* I think it is an objectionable one. A man cannot serve two masters. If a man is paid by Government to help people, then he should be content. If a little plum comes along from a Native State outside British jurisdiction, he may be allowed to have a fee.

*President.*—*Q.* I notice that you advocate the establishment in India of a large number of branches of English firms. That is so that they can study the needs of the country and accommodate their orders accordingly?—*A.* Yes.

*Q.* Also it is difficult to know where to get things like nuts, bolts and locks and other things. You know that they are made in the country but you do not know where ?—*A.* Yes.

*Q.* And you want consequently to have an establishment in this country, a representative of the Director General of Stores, who would make it his duty to do some of these four things that you have laid out ?—*A.* Yes.

*Q.* For instance, he can increase the local purchases ?—*A.* Yes.

*Q.* When you begin to enumerate the kind of duties that that man will have thrown upon him, the variety of officers that he will have to employ, the technical and geographical amount of inspection that will have to be undertaken—you realize that it is a big machine ?—*A.* Yes.

*Q.* Such a man you call the representative of the Director General of Stores, but more appropriately he will be a part of the Government of India ?—*A.* I really do not mind. I am not bound down to the Director General of Stores.

*Q.* You do not insist on that point, but from our point of view it is important to describe the machinery that the Government may be able to work with, and it is quite obvious that we could not have in this country a representative of the India Office not subordinate to the Government of India ?—*A.* Yes.

*Q.* If you follow up your idea and consider in addition to this the big function of purchasing either from the home firms who have got branches here or from people making in the country and add to that the desirability of more constantly encouraging the industry of the country you are looking at the Stores question from another point of view, from the Government of India side, the Indian side rather than the home side, so that your purchasing officer here will make it his business to get an article made in this country rather than send home for it to be made ?—*A.* Yes.

*Q.* In that case it does not matter so much whether you fix your Director General of Stores in Bombay or anywhere else.—*A.* I do not care where it is, so long as we can get it in India. That is a thing that has got to be worked out.

*Q.* From the point of view of the purchasing officer it would be much better for him to be in a large city that happens to be the best manufacturing centre ?—*A.* Provided he is in touch with the other parts as well. I do not care whether it is Bombay or Calcutta. I have no interest in either. It is purely a question of being able to get information as to where things can be obtained.

*Q.* You do not distinguish between Bombay and Calcutta ? *A.* No. I do not think the point arises.

*Q.* It is quite obvious that you have got to have agents in manufacturing centres as well ?—*A.* Yes.

*Q.* We are getting a certain amount of experience in the Munitions Board and beginning to find out where we can get things made.—*A.* You have found difficulty in finding out where things are made ?

*Q.* We are getting to find out that there are several places besides both Bombay and Calcutta.—*A.* There are many other places.

*Hon'ble Sir R. N. Mookerjee.*—*Q.* How many years have you been in India ?—*A.* Five years.

*Q.* You say that the manufacturers in India always turn out inferior things. Is it from your experience ?—*A.* Generally speaking, there is not the same finish, the same quality about the Indian made article—I am taking a high standard and I am aiming at it.

*Q.* What is your annual purchase ?—*A.* My annual purchase is very little indeed—infinitesimal. But I see a great number of things which come to the Public Works Department. We buy in India whenever we can, and I am always in the habit of looking into Indian made things. I want to try and raise the standard.

*Q.* Then you can authoritatively say on your observation that all the articles made in India are always inferior ?—*A.* I do not say that is the case entirely, but I think that is the tendency. Take, for instance, an iron casting. One from England and one from India. The Indian one would do all right, but it is not so nicely shaped and clean as the one from home. It is a thing which I want to try to improve.

*Q.* I have some experience of heavy castings and we find that castings here are not inferior to those from England.—*A.* That is not my experience.

*Q.* You say, " At the present time there are few articles of local manufacture which come up to the standard of goods supplied by the Director General."—*A.* I did not say, 'none'.

*Q.* 'Few' means 'none'. If they get branches in India you impose a condition that they must keep an engineer. But when you get your supplies from England you do not impose the same condition there. Why should a branch firm coming out here always keep mechanics ?—*A.* That is a thing I want to encourage. I have to deal with a great deal of pumping machinery for municipalities. I have got no staff to put up the machinery at all. When it is indented for from the Director General I have got to specify that a man should be sent to put it up and hand it over in working order. The Director General says that he has got several tenders from different firms who are very pleased to tender f. o. b. for the goods but they are not able to tender for the erection because they have not got the staff. They will be pleased to send a man out but he will have to be paid extra by the month. My idea is to encourage branches out here to have their own men and see a job through from start to finish. There is one firm which gets practically all the pumping machinery contracts in India because they had the foresight to keep the staff of men always in India.

*Q.* You want that only the branches out here must keep all these mechanics.—*A.* I want firms who will take an interest in the goods they have supplied afterwards. Branch firms would be of little use to the country unless they erect their machinery and keep an eye on its performance afterwards. They will employ Indian draftsmen, clerks, fitters, erectors, etc., and it is my idea that many of these men will work up to positions as engineers in local manufacturing firms.

*Q.* You are opposed to having a board with the Director of Industries. How are commercial firms worked ?—*A.* They probably have a Managing Director and also a board the members of which are paid fees.

*Q.* And they do nothing ?—*A.* I am not going to say that they are doing nothing. They have got their money in the concern and they are therefore interested in it. What I say is, that if you take the average board out here—a Government board, that has very busy men on it—progress is impossible.

*Q.* The Board of the Director of Industries will be a non-official board.—*A.* If it is a non-official board the members will have to be paid. I do not mind a board so much, if the members can take interest in the work, but if it is decided to have a board and everything depends on that board which only meets two or three times a year, I say that progress is impossible.

*Q.* They will do their work as private commercial firms do.—*A.* My own idea is that the English boards sometimes work much better. In the Local Government Board, the Board of Education, the Board of Works and the Board of Trade there are permanent officials and the board never meets.

*Q.* For the development of industry have you got any board like that ?—*A.* These are business boards and they do good work, and I do not see why an Industry Board should not run on the same lines. What I say is, get the right man and pay him well and make him drive the *office* of the Board of Industry and give him plenty of expert assistance and he will do all right.

*Q.* As regards the mechanical foremen—you want them from the fitters' class ?—*A.* A fitter is a fitter. He has to do fitting work on engines and by and by he may rise to be a foreman. It is not necessary that he should be what we call an "educated man". He is a mistry.

*Q.* In England even if he be a fitter he has some education ?—*A.* Yes, he has got primary education.

*Q.* In India you cannot get a fitter who has got that education ?—*A.* I want to take the mistry class for fitters. I do not want to take boys from the Victoria Jubilee Technical Institute who are too good for it.

*Q.* But as mechanical foreman or manager of a mill ?—*A.* Yes, the latter boys ought to do better in life than become ordinary working fitters.

*Q.* Mr. Low asked you whether you will have any educated Indians to take to this profession as mechanical engineer by being an apprentice in a workshop.—*A.* I should like to see that.

*Mr. A. Chatterton.*—*Q.* What are the duties of the Mechanical Engineer to the Government of Bombay ?—*A.* I came out for the purpose of inspecting pumping stations, and since then I have had my duties considerably increased and have got to inspect all the Public Works Department machinery. I am working as Superintending Engineer looking after the Central Workshops where any repairs of Government machinery are carried out. All departments of Government including the Medical ask me to help about their machinery and plant, and I am on various boards. We are more or less confining ourselves to repairing plant and do not want to manufacture at the Central Workshops. These workshops were started in 1915.

*President.*—*Q.* The Medical Stores people tell us that they get their repairs done by the Director of Indian Marine.—*A.* The medical people have a factory of their own. We are quite prepared to take up and do any repairs, but have not got all the machinery yet.

*Mr. A. Chatterton.*—*Q.* Has this workshop been started in consequence of experience of deficiencies in private workshops in Bombay ?—*A.* I do not think so. I do not think that private workshops are deficient in Bombay in any way, but the whole point was that we had a lot of repair work which was never done.

*Q.* Your object is to supplement the existing private workshops ?—*A.* Yes.

*Q.* You do not come into serious competition with them ?—*A.* I do not think so. They are rather glad that we should do work which they do not care about.

*President.*—*Q.* You began in 1915 and you have been all along in war time, and the engineering firms in Bombay have a great deal to do, so that it is hardly fair to draw this inference from war experience.—*A.* If you take the case of an old portable engine and ask a Bombay firm for an estimate to overhaul it thoroughly for you, I do not think they care about it. Our idea is to take all plant belonging to the Public Works Department into our Central Store when it is not wanted. At the present time it rusts out or becomes useless. I go round and inspect the various districts, and when I see any plant not being used or lying in a corner, I ask for it to be sent to the shops where we repair and overhaul it, so that directly an executive engineer wants plant we may be able to send it out to him in good order.

*Mr. Chatterton.*—*Q.* Have you large stores of raw material ?—*A.* No. We are not going to have that.

*Q.* As regards the question that has been raised about the training of mechanical engineers, as you have been recently out from home, would you tell us what system is most prominent at home for the training of mechanical engineers ? Do they come straight from the school to the works, or do they come from the school to the technical college and then to the works ?—*A.* I have been out here for the last five years, and so far as I can gather the system is that they go from school to one of the universities or one of the big technical institutions, and there take their technical training and then go into the works. Generally they have had to pay to go into works, but I believe the system of paying has dropped out from what I have heard.

*Q.* Did you personally go through a course like that ?—*A.* I took my degree at Cambridge and went into works for four years and had to pay.

*Q.* The question was raised by Mr. Low about the employment of Government experts to do private consulting work. Supposing that industries and mechanical engineering develop largely in the future there will be need for a considerable number of consulting engineers and consulting industrial experts ?—*A.* I quite agree with that, but that is a matter of private enterprise.

*Q.* Would it be a satisfactory system to induce these men to come into the country on Government service and pay them a retaining fee and allow them to do such private consulting work as they can and also do consulting work for the Government ?—*A.* If it is the intention to subsidize them when they come out here, they will get well on their feet, and when Government wants them they will be too busy with private work. I should think it will be very nice for the man, but I do not think it is a good thing at all from the Government point of view.

*Q.* If you want to get a better class of consulting engineers out here to develop the industrial system, would it not take a considerable number of years for a mechanical engineer to build up a good practice ?—*A.* Yes. But of course, if he got the stamp of Government on him it would come quickly. With Government as a stepping stone a capable man should be able to develop a business of his own quickly and having got a reputation he would leave Government who would have to start all over again.

*Q.* Would you recommend the abolition of the examinations for certificates for engineers in charge of boilers ?—*A.* Yes. I had rather expected to have more questions on that point. My experience in going round different stations is that while it is obligatory to employ one of these men and to pay him a good salary he knows that he cannot be done without and he frequently does nothing. I cannot see why we cannot now employ any man we like to look after engines and boilers. There are enough men for the work, and this system of having to employ men, often to do nothing—and they know they have certificates is doing a lot of harm. In every engine house there is a low paid mechanic who does the work. This is the man I want to encourage, but owing to his lack of education I cannot do so as he is unable to pass an examination and get a Boiler certificate.

*Sir F. H. Stewart.*—*Q.* You have been here for five years ?—*A.* Yes.

*Q.* Would you mind telling us what you were before you were engaged here ?—*A.* I served my time in Messrs. James Simpson & Co.'s works and spent about four years in going through all their workshops and on erecting engines in different parts of the world in connection with water works. Then I became an assistant engineer in the Portsmouth Water Works Co., where I was for about eight years and left to take up my present appointment as Inspector of pumping plants in the Bombay Presidency.

*Q.* Do you know whether there is a similar appointment in any other province ?—*A.* I understand that they are going to make one in the United Provinces.

*Q.* You do not think that it would work if the Mechanical Engineering Department were under the control of the Director of Industries ?—*A.* I have got my own definite work to do, and I think there is room for another mechanical engineer under the Director of Industries.

*Q.* What department do you come under at present ?—*A.* I am under the Public Works Department and write either to the Joint Secretary to Government or the Secretary to Government in that Department.

*Q.* You raise a question about a provident fund for experts engaged on a temporary basis because you say they will be older than the majority of men coming to this country, and they should be provided with a good provident fund in preference to a pension. Would that be satisfactory ?—*A.* I am a temporary man myself, and am subject to one month's notice. I have a provident fund which is based on the railway provident fund system. I came out here when I was about 34, and I think from my own point of view that a provident fund is most satisfactory. I give a twelfth of my pay and Government add 75 per cent.

*Q.* What about the investigations of these experts ? Will their results be kept private ? —*A.* It will be better for the country if they are made public.

*Q.* Would that not be a hardship to the private concern ?—*A.* I take it the fee is to be very small. The firm which can pay handsomely will have their own man and keep their secrets. If the firm is a really big firm it will hardly want to go to Government for help.

*President.*—*Q.* Have you any supplementary remarks to make ?—*A.* I hope you will pay particular attention to the boiler part of the business. I want the Boiler Inspection Act to be the same for the whole of India, and I want the compulsory employment of certificated engineers to be abolished.

## WITNESS No. 331.

*r. G. R. Duxbury.*

MR. G. R. DUXBURY, *Deputy Conservator of Forests, Sind Circle.*

### WRITTEN EVIDENCE.

### *Financial Aid to Industrial Enterprises.*

ioneer factories.

I have no experience of Government pioneer industries. My opinion nevertheless is that Government should start these in the case of new products, and especially when they own the raw materials the utilization of which it is desirable to foster.

Speaking of forest products belonging to Government, I would suggest that the utilization of these, if proving remunerative, should be kept under Government control until a genuine competition has been started. Government could then put the factory up to auction with a reserve which would embody the cost to date, *minus* depreciation. It should be a *sine qua non* that the factory should be in charge of an expert and operations be at first conducted on a small scale.

### *Technical Aid to Industries.*

Demonstration factories.

In my province I suggest a demonstration factory for the extract of—

(*a*) Tannin. There are already several tanning factories where the hides and raw babul bark are soaked together in vats, and the more scientific methods of using tannin extracts should be demonstrated. I would establish a factory at Kotri near Hyderabad Sind.

(*b*) A small demonstration factory should be established at Hyderabad Sind to show purchasers of lac how the crude lac should be refined.

(*c*) At Sukkur after the war when the necessary machinery for metal reinforcement of the bobbins has been imported, a demonstration factory for bobbin manufacture could be started, if the woods about to be tried for the manufacture of *wood bobbins* prove suitable.

### *Other forms of Government Action.*

Working of Forest Department.

The chief drawback to the successful working of the Forest Department is largely lack of funds. The Forest Department expenditure depends on what revenue it can bring. The Blue Book on the administration of the department in India will show the variation in the proportion of expenditure compared with the revenue in the different provinces. Communications must be improved where bad—this is the most urgent matter in the large forests away from the rail—and will help produce, which cannot at present be exploited to be put on the market. Industrial enterprise will follow, helped by demonstration factories staffed by managers who must know their business. This lack of communications does not refer to the province of Sind.

In Sind most forests lie along the river and within easy reach of the rail. Concessions as regards railway freight and the establishment under Government control for hire of tugs, with flat bottomed barges, would much stimulate contractor's work. The country boats are slow and costly to hire.

In Sind all growth depends on the proximity of water. This is available by flooding in riverain areas, but the danger is that plantations so situated may be washed away, while inland forests are considered after cultivated lands, in the supply of water through sluices in the bund, and lift irrigation is too expensive for forests except under the system of agriculture with forestry. In the circumstances special plantations for tannin bark cannot be guaranteed to be raised and maintained at a rate which would make the sale of bark financially profitable on a limited area.

(*Mr. Duxbury did not give oral evidence.*)

## WITNESS NO. 332.

## MR. W. F. D. FISHER, *Conservator of Forests, Northern Circle, Bombay.*

*Mr. W. F D. Fisher.*

### WRITTEN EVIDENCE.

### *The Forest Industry in the Northern Circle, Bombay Presidency.*

### INTRODUCTION.

The prosperity of the forest industry and that of industries which extract, trade in, or consume its products being indissolubly interdependent, any survey of the circumstances and condition of the former must often find expression in terms of the latter and any possible improvement in either must similarly affect both.

The industries with which that of forestry is thus associated may be classified as follows :—

*Class A.*—(i) Those which are wholesale extractors of forest products, such as the industries of agriculture, timber, firewood, grass, minerals, etc.

(ii) Those which draw their special requirements from the above, such as the industries of construction of all kinds (ships, railways, buildings, conveyances, carpentry), and the manufacturers of special articles such as toys, brushes, handles, etc., etc.

*Class B.*—Those dependent on other forest products in varying quantities and special forms, such as manufactures of matches, paper, glass, tan, coffins, picture frames, gums, etc.

*Class C.*—Those requiring products obtainable by special scientific processes from otherwise valueless forest produce, such as industries producing acids, charcoal, dyes, gases, oils, spirits, tars, etc.

Hereafter, when spoken of collectively, the above will be termed "dependent industries."

The forests of the Presidency are divided into 'Circles'. The circumstances of one circle are not necessarily those of another, but the condition of the forest industry is similar in all circles, differing, however, in degree, even within one and the same circle. Unless otherwise indicated these notes refer to the Northern Circle only.

The subject is so vast and the time available so short that this survey is necessarily meagre and the matters dealt with must be taken mainly in the order mentioned in the question paper.

### *Capital.*

Owing to the facts that the organization and development of the forest and other industries leave much to be desired and that many more "dependent industries" are likely to be developed, while prices of forest produce are steadily rising, the capital value of our forests can only be expressed in terms of area and quality, helped out by figures of estimated working capital and returns. **Forests.**

The reserved forests of the Bombay Presidency cover 14,000 square miles, the larger portion being of very high quality. There are besides many hundreds of square miles of equally valuable Government woodland practically unorganized, from portions only of which some revenue is obtained. Our gross revenue may be taken at Rs. 55 lakhs and our expenditure at Rs. 27½ lakhs.

The Northern Circle has 3,000 square miles of reserved forest and about 1,500 square miles of valuable woodland. The gross revenue is Rs. 18 lakhs and expenditure Rs. 7½ lakhs. The annual outlay of working capital by "dependent industries" class *A* (i) only, for the extraction of forest produce is roughly estimated at Rs. 22½ lakhs and would be much larger were it not for quick returns. This money is partly the property of individuals and partnerships and partly borrowed by them from money-lenders. If twice the sum were required it would probably be forthcoming. There is probably ample indigenous wealth to finance any industrial enterprise that appears sufficiently attractive, *e.g.*, when it was thought that there was money in matches, lack of funds did not stop private enterprise. More recently the same was true of glass.

Capital is shy, fickle and elusive, because of uncertainties due to lack of scientific and technical knowledge and of business capacity, especially of organization, among those concerned. High rates of interest are looked for as an insurance against loss of capital, so that successful schemes A and B shall cover failure of scheme C and still leave a profit. There appears ample capital, but while profit making is often too easy to stimulate care, opportunities for investment are too restricted.

*Government Assistance.*

The timber industry suffers much from lack of organization and want of scientific and technical knowledge. These wants can only be supplied for some time to come by the Forest Department, but this is difficult at present owing to lack of organization in that department including the paucity of trained officers and the shortcomings of the lower staff.

Matches.

The match factories in Ahmedabad and Belgaum have enjoyed exceptionally generous assistance in free wood and wood at low rates, but they are failing owing to lack of business capacity in their promoters who, having located their factories, bought their machinery and enrolled their staff, only then began to consider the availability of their raw material Better organization of the forest industry would make such material more available, but nothing that Government can reasonably do will make those factories thrive, even if similar factories in other localities might, thus aided, justify their existence.

The glass industry appears a sound business in certain localities but is paralysed by bounty fed produce from Japan. This mistake is a direct loss to Government through its forest industry. It is hoped that the glass industry, *e.g.*, the factory at Sunth Road, be suitably protected and aided by Government with expert advice.

Saw-mills.

Rs. 15,000 have been advanced to a contractor for a saw-mill industry because the concern is on a sound basis and ample security is taken against loss. Scientific and technical advice will be given by the Forest Department, also any reasonable assistance in arrangements, etc., but were the forest industry better "found" such assistance would be more valuable, and it is to the advantage of the forest industry that this saw-mill should succeed. This venture is now threatened with failure owing to lack of business capacity in its manager.

Other industries.

The dairy industry at Palghar has received valuable assistance by a grant of land 400 acres in extent, yielding an annual crop of grass worth Rs. 3,000 for an annual rental of Rs. 200.

The writer knows too little of this venture to say why such grants should be made.

The last mentioned industry would be of great advantage to the forests if it tended to inculcate in the people an appreciation of the value of stall and meadow feeding and the general care of cattle, but it hardly promises that.

Conditions of Government Assistance.

What form of Government assistance (if any) should take in general cannot be said—each case must be taken on its merits. Such assistance should, it is submitted, connote a right on the part of Government to audit accounts and to take any other step that would enable it to study the working of the industry concerned in connection with results. Otherwise valuable experience for the future would be lost. On the other hand, Government should interfere as little as possible beyond tending expert advice suitable to the circumstances.

Pioneer and Demonstrati Factories.

If a pioneer factory seems advisable it would be best located at a centre of technical and scientific education. The building and fittings should be such that if the venture did not prove successful they could be adapted for similar experiments in another line. If the results were satisfactory the factory could be brought to a normal working level and form a most valuable asset for technical training and modified or extended as a demonstration factory. Where such location is unfavourable this could be duly allowed for in final conclusions.

*Assistance in Marketing Products.*

Exhibitions.

Exhibitions should be educational and supplemented by lectures. They should interest the young, point the way to obtaining training in the various industries, and thus encourage parents to provide for the fulfilment of the interest roused.

*Other forms of Government Aid.*

Supply of raw material.

It would seem a mistake to supply any industry with Government owned raw material on favourable terms beyond a comparatively short experimental period, and then only in quantities sufficient to determine the problem at issue. If an industry is founded on sound bases and not neglected by allowing bounty fed enterprises and the like, it should find its raw
in the open market, *i.e.*, on terms common to all comers. It is never known when a
nand for any given raw material may arise. To bind Government for a long period
s-in-aid seems bad business, *e.g.*, match factories think that after 15 years they should
given valuable concessions, but the picture-making trade and the coffin trade have since
and both require the same material. Paper may do the same. There would be no
r an industry which cannot stand against an imported article after normal working
ed, provided always the imported article is not bounty fed or otherwise pampered.
nent may well be expected to ascertain, by expert advice, etc., *why* an industry is not
, but not contemplate keeping it going with artificial support.

(*Mr. Fisher did not give oral evidence.*)

## WITNESS No. 333.

**MR. W. F. STUART-MENTETH, M.I.E.E.,** *Electrical Engineer to the Government of Bombay.*

### WRITTEN EVIDENCE.

### *Technical Aid to Industries.*

**Assistance from Government experts.**

In electrical work there are practically no consulting engineers in the Bombay Presidency and there is a need for such engineers, but the business for many years to come cannot be sufficiently remunerative to attract them. In these circumstances, it is desirable that Government expert officers should freely assist any contemplated electrical undertaking by giving technical advice. When such advice does not involve Government in any material expense, it should be given free, but when it is necessary to prepare detailed plans and estimates a charge should be made by Government sufficient to cover the cost of the work. I don't think the Government Consulting Engineer should be called upon to purchase machinery and plant. He should draw up specifications and call for tenders, recommend tenders for acceptance and be responsible only for the machinery conforming to the specification.

### *Assistance in Marketing Products.*

**Commercial bureau suggested.**

There is no doubt that purchasers and suppliers need to be brought together by some system. The difficulty experienced in my own case is in not knowing where certain materials are to be obtained. A commercial bureau at the headquarters of each local Government would be of great assistance. A museum would also be of use, but it is questionable whether the expenses of such a museum would justify its existence. I think a commercial bureau would probably answer requirements.

**Purchase of Government stores.**

There is not the least doubt that, as far as Government work is concerned, restrictions imposed by rules for purchase of stores restrict the development of electrical enterprise in India. It is far cheaper and in every way more satisfactory for Government to purchase direct from firms in India. I submit herewith a list* of cases showing the cost and delay to Government through purchasing electrical plant through the Director General of Stores. Purchases should be effected from local firms whether the material is in the country or not, as they accept responsibility for breakage, and in the case of plant will erect it and make it over in working order. Also an officer is able to at once explain to the local firm any doubtful points on matters, which, if the order is placed through the Director General of Stores, are disposed of by an officer with no experience of India or any knowledge of our requirements. I have been trying for some time to get an important electrical firm to open a branch office in Bombay without success. If orders are allowed to be placed in India, important firms which now are in close touch with the Director General of Stores but are not represented in India will at once have to come to India and open branches to secure their orders.

**Need for standard pressures.**

Another important point purely in connection with the supply of electrical material in India is that the pressures of supply of energy by the various licensed undertakings in India should be made to comply with the standard pressures adopted by the British Engineering Standards Committee. The effect of this would be that all suppliers of electrical material would only have to stock standard apparatus, whereas at present, owing to a diversity of pressures of supply, they have to stock a variety of apparatus to suit each particular undertaking. This Government is now prescribing standard pressures in their licences, but if all the undertakings that have been licensed could be brought into line in this respect, it would be a boon to all supply-firms.

### *Forms of Government Aid to Industry.*

**Supply of wood by Forest Department.**

It is a striking anomaly that with the enormous areas of forests in India, firms should be able to make fortunes by importing timber from Australia and elsewhere. The Forest Department does not help industries in this respect as it ought to do. They should be in a position to supply sawn timber, seasoned and otherwise, at accessible depôts throughout the country. In electrical work we import iron poles for overhead lines which in many cases could be of wood, if the Forest Department had ready facilities for supplying them.

### *Training of Labour and Supervision.*

**Lack of primary education.**

I do not think that there is any question that the lack of primary education does hinder development in India. I have had 19 years' experience in different parts of India, and have frequently met numbers of men, with considerable aptitude and skill, who suffer through being uneducated and who, if they had had primary education, could have risen to better positions.

**Necessity for practical training of labour.**

The electrical industry suffers more than others through lack of trained labour. I have proposed to Government that steps should be taken for licensing skilled electrical labour.

---

* See Appendix printed after written evidence.

Government have generally approved of this proposal and it was discussed recently at the Electrical Conference. My proposal was based on the practice adopted in New Zealand which was found to be most beneficial. The labouring classes at present suffer through not being able to get practical training by apprenticeship. Facilities should be provided, so that this training can be obtained and the apprenticeship course should be prescribed so that apprentices receive a complete training in various branches without being confined, as at present, to one particular work. Students who qualify at technical colleges at present are generally unlikely to be of any use in mechanical or electrical works, owing to their absolute want of aptitude and dislike for any form of manual or practical work. Ninety per cent. of the students that have passed through the technical colleges are, in my opinion, useless for practical engineering work, owing to this want of practical ability. The training that is being given to them therefore is being wasted. When a branch of engineering requires practical aptitude the student should not receive theoretical education until he has proved his aptitude for such training by having passed through an apprenticeship satisfactorily. Or the theoretical and practical training might be sandwiched; that is, a student might be one year at a technical college to learn elementary theory and the use of tools; he might then go through his apprenticeship course which should be followed by final theoretical training. This remark does not apply simply to those students who have been educated in India. I have had numbers of instances of students who have been sent home and have taken high degrees in engineering at technical colleges in Europe, who never can and never will be of any use as engineers, owing to an inborn inability for doing any practical work whatsoever. On the other hand, as already stated, there are numbers of uneducated practical men who, if they had had the necessary theoretical training, would have risen to better positions and supplied this great want of the country.

I have had a few instances in my office where we have started to train apprentices in electrical work, but it has been a failure, owing to the apprentices leaving as soon as they have got a smattering of knowledge and setting up as electrical engineers and contractors. These men are a danger to the country. It is necessary therefore that there should be a definite prescribed course of training for apprentices which they must be required to complete before embarking on other employment. The practical training given in technical colleges is, in my opinion, absolutely valueless, as such training can only be given by apprenticeship to works. The training in technical colleges also fails through not having an adequate staff of competent instructors. It is impossible for a single instructor to be thoroughly *au fait* with all branches of the subjects he has to teach. Instruction should therefore be supplemented by experts in the various Government departments and manufacturing firms.

### *Organization of Technical and Scientific Departments of Government.*

A technological institute in each province.

In connection with electrical work, Government has to maintain a testing laboratory and references are frequently made to me by local firms for assistance by giving certificates for accuracy of instruments and other electrical apparatus. No definite rules have yet been framed with regard to giving such assistance, but it would be of great value to firms and should be given. There is a tendency to restrict this work by charging unnecessarily high fees. Fees are necessary, but they should be as low as possible. I do not believe in attempting to centralize anything of this nature in an Imperial Department. Local Governments should be free and unfettered in developing their own respective jurisdictions to the utmost. There should be a technological institute therefore for each province; the country is far too large to centralize such matters in a central institute. Moreover each province has its own particular resources and development of such resources should be encouraged in the province where they actually exist.

Local Governments in many cases have appointed technical and scientific experts in various branches and unless such officers are Imperial officers appointed by the Secretary of State, they are restricted in studying methods in other countries which are vitally important to them; without such facilities they cannot possibly keep up-to-date in their particular subject.

Reference libraries.

With regard to reference libraries, I think there is a great need for such libraries in each province. Every Government or technical expert also should have a complete library on his own particular subject at his disposal.

### *Other forms of Government Action and Organization.*

Hydro-electric power surveys.

With regard to hydro-electric power schemes, Bombay is progressing in this respect more than elsewhere, but the development of such undertakings is left to private enterprise entirely. There must be along the whole length of the Ghats innumerable places where power can be developed economically and investigation is unquestionably desirable. A survey showing places where this can be done economically would be most valuable. In the ordinary course of duties a Government officer, however, is too overworked to do any original work of this nature. Government experts should be encouraged in this respect and should be assisted by being relieved of all routine, clerical and accounts work which under the existing system such an officer is tied to.

The Electricity Act

When the Electricity Act of 1910 was drafted and submitted to this Government, they strongly recommended the adoption of rules framed by the Board of Trade and Scientific Bodies at home instead of special rules framed by the Government of India. In practice these latter rules, in many cases, have been ambiguous and unsatisfactory. The adoption of rules which the manufacturers at home are conversant with instead of special rules for India would have been, in my opinion, more advantageous, and is, I think, even now desirable.

When the draft Act was promulgated, it was proposed to centralize the administration of electrical matters in the Government of India. Owing to the strong representation of this Government, however, the Act was modified and powers were decentralized to a considerable extent on local Governments. Further decentralization, in my opinion, is desirable. For instance the standard units for electrical measurements prescribed by the Act are those represented by the Government of India standards in Calcutta. Outside Calcutta, as far as I am aware, these units have never been used. Standards should be set up in each province based on the Imperial standards. The present standards of the Government of India are never used as standards for India and are therefore useless.

The power for framing rules at present is vested solely in the Governor General in Council. I am strongly of opinion that these powers should be vested in the local Government as particular circumstances in a province may require rules which are not required elsewhere. The attempt to treat electricity as a highly dangerous source of energy which must be administered by a central authority is, in these days, when electrical experts abound, entirely unnecessary. Moreover, the applications of electrical energy are unlimited and progressing every year and any tendency to centralize its administration must restrict development.

Local Governments should have absolute and free control therefore in dealing with and developing electrical enterprise in their respective provinces. In spite of efforts of this Government to decentralize administration in this respect, centralization is still being striven for, as shown by a recent order of the Government of India under the guise of " the necessity of uniform practice for India." Uniformity means centralization, which in turn means delay. Burma has oil fields, Bengal coal fields, Bombay water power—uniformity of practice in such case therefore is a hopeless bugbear and each province should be absolutely unfettered to develop its own resources as rapidly as it possibly can.

## APPENDIX.

*Cases of Loss and Delay in ordering Material through the Director General of Stores.*

1. In February 1915 we indented on the Director General of Stores for laboratory equipment estimated to cost £1,229. The indent comprised electrical plant, switch boards and instruments. The Director General placed the whole order with a firm that manufactured electrical plant only; this firm then subcontracted the rest of the order with a firm that made switchboards only; this firm in turn again subcontracted with an instrument manufacturer for the supply of the instrument portion; the result was that the Director General's quotation amounted to £2,610 exceeding the cost of supply by a local firm by £1,139, that is double that of the work, and material has not yet been supplied (reference Government Order A. -6870, dated 3rd July 1916).

2. Batteries of a certain make were ordered in 1912. The Director General supplied batteries of another make which could not be utilized and contended that these batteries were identical in all respects with those that had been ordered but afterwards admitted and regretted his mistake. Batteries were then ordered and supplied locally which involved Government in a loss of nearly Rs. 4,000 and several months' delay.

3. Switchboards ordered through the Director General of Stores in May 1912 arrived broken and 1½ years expired before their replacement was effected.

4. A Cooper Hewitt Printing machine was ordered from the Director General of Stores; on arrival one lamp was broken; the cost was borne by this office. A new lamp which was then ordered was again broken and the cost again borne by this office. Lamps were then ordered from a local firm and supplied intact within three months; a delay of nearly two years occurred through this order being placed with the Director General of Stores.

5. A motor pump estimated to cost £60 was ordered through the Director General of Stores; intimation was received that the cost would exceed the estimate by £165. The pump was then purchased locally for £62.

6. Motors for Printing machines estimated to cost £41 were ordered through the Director General of Stores. A cable was received intimating the cost would be £108. The motors were then purchased locally at half the Director General's cost, namely £54.

## ORAL EVIDENCE, 26TH NOVEMBER 1917.

*President.*—*Q.* How long have you been in Bombay ?—*A.* Eleven or 12 years.

*Q.* As Electrical Engineer to Government ?—*A.* Yes.

*Q.* Before that you were on the Calcutta side ?—*A.* Yes.

*Q.* How many years were you over there ?—*A.* I have been about 19 years altogether in the country.

*Q.* The previous 8 years in Darjeeling ?—*A.* Yes, and a year at Lahore.

*Q.* You are advocating, as has already been advocated here, the introduction into the country of firms that are able to supply many of the wants that are now obtained by indenting on the Director General of Stores. I understand that your idea is that these firms can study the wants of the country ?—*A.* Yes, certainly.

*Q.* And accordingly can produce materials more suitable to the country than can be done by an agency at home. If you have an arrangement of that kind the arrangement exists for that matter now, in a small way—you don't propose that Government should do anything active in the way of encouraging these firms to come here; you don't make any proposal on those lines ?—*A.* No, I do not. The only thing is that you should discourage them by not giving them orders direct from home ; let them be out here, so as to get their orders here. You have got big firms at home who get orders from the Director General of Stores, who are not out here.

*Q.* What practical steps could be taken according to the Stores rules you are expected to buy anything in the country made of country materials, or anything in which there is a substantial amount of workmanship done in the country ? As long as there are no firms in the country who can make the articles, we are practically forced to buy from home under the present rules. *A.* Yes.

*Q.* What is the first step to get out of this vicious circle ?—*A.* Government have to encourage firms in some way to start out here. I cannot say in what way they should do so. For instance, in Japan a well-known manufacturing firm in England has put up works ; and if they are able to do that there, they might be encouraged to do the same here.

*Q.* Is it not due to a want of enterprise on the part of the firms ?—*A.* It is principally due to their getting orders at home for India.

*Q.* In other words, you think that if they came out and set up their works here, they are afraid that the orders would still go home through the Director General of Stores ?—*A.* Certainly.

*Q.* That would not be in accordance with Stores rules, under which we are to buy from them so long as prices are suitable and quality up to standard.—*A.* Government will have to encourage them to begin here.

*Q.* Can you tell us why there is this failure of enterprise in India, as compared with Japan, on the part of European firms ?—*A.* That is an extremely difficult question to answer.

*Q.* You have given us an illustration of a well-known firm who went to Japan and set up works there ; why don't they do the same in India ?—*A.* I cannot say why they do not at all.

*Q.* What testing laboratory do you refer to on the 2nd page of your evidence ?—*A.* We have to be in a position to test meters; and firms out here, who supply a variety of instruments, have no means of certifying to the accuracy of these instruments. They frequently write to us and want certificates to that effect.

*Q.* Have you got a testing laboratory here ?—*A.* Yes.

*Q.* And do you do work of this kind for firms ?—*A.* Yes. But we have not got our laboratory in proper order ; we have done a certain amount, and hope to do a great deal more than we are able to do at present.

*Q.* Do you charge firms for this work ?—*A.* Our charges have not been approved of by our Government yet ; but certain fees have been more or less laid down at a Conference of Inspectors.

*Q.* You propose to give a recognized certificate ?—*A.* Yes.

*Q.* Is that certificate placed on the instrument in any way ?—*A.* We will do that ; we will give them a definite calibration of the accuracy of the instruments they send us.

*Q.* Can they use that and publish it ?—*A.* They would use it for each instrument sold.

*Q.* Is there any way in which that certificate is likely to be abused ; for instance, put on to a wrong instrument ?—*A.* That is a small detail which we could get over all right. Every instrument has got its number.

*Q.* You think that the whole of this work should be entirely under the control of the Local Government ?—*A.* In what way do you mean in connection with the instruments at this laboratory ? Yes.

*Q*. And you say it would be an advantage to have one common standard for the whole of India ?—*A*. We have got a common standard for the whole of India, but it is never used. It was set up in Calcutta, but outside Calcutta it is useless.

*Q*. What standard do you refer to ?—*A*. The standard for electrical units in India.

*Q*. Do you mean to say that in Calcutta standard units are employed when they are not elsewhere used in India ?—*A*. They have set up Government of India standards in Calcutta. If there was any legal question in regard to the accuracy of meters here, it would finally have to be disposed of by reference to the units in Calcutta.

*Q*. That is not necessarily a drawback ?—*A*. It is impossible to comply with.

*Q*. It is not necessarily a drawback, the system of having an Imperial Department, or having these systems centralized, because there may be something wrong with the present working of the system. That could be put right. Who is the responsible authority in the case of Calcutta ; who is it that has caused this trouble ?—*A*. It was done by the Electrical Adviser to the Government of India. He set the standards up in Calcutta.

*Q*. In what way are his standards impossible to apply in Bombay ?—*A*. They are not impossible ; we can set up the same units here, but legally the only unit is the unit in Calcutta. We can set up identically the same unit on the international basis.

*Q*. Why don't you ?—*A*. We will probably do so, although legally under the Act we would have to make a final reference to Calcutta.

*Q*. You have not yet shown that it is a disadvantage to have an Imperial Department, merely because you yourselves here have departed from the standard recognized by the Electrical Adviser to the Government of India ?—*A*. We have departed simply because it is not possible to use the standards.

*Q*. They could be duplicated ?—*A*. Yes, but legally they would not be the same. There is only one standard which is in Calcutta ; we can reproduce the same thing here, and for practical purposes we do do it.

*Q*. But if you applied your conclusion to all Local Governments, what is going to happen to Local Governments that are not so highly developed as that of Bombay, or within which industries are not developed to the same extent. Take Burma ; would you have an Electrical Adviser to the Government of Burma, with the same standard ?—*A*. Certainly.

*Q*. And at Coorg ?—*A*. Yes, at Madras.

*Q*. But Coorg is not under Madras.—*A*. Even then you could do it in each place.

*Q*. And the North-West Frontier Province ?—*A*. It all depends upon the extent of development.

*Q*. That is why I am putting this point before you ; there are so many varying degrees of development that it seems impossible to judge of provinces from the point of view of Bombay. It may be possible for the Bombay Government to provide Electrical Engineers, but the less-developed provinces would not be so successful.—*A*. They can easily get men.

*Q*. They have got to pay for them.—*A*. The Central Provinces have got Electrical Engineers.

*Q*. Would the North-West Frontier Province have a full-time Electrical Engineer ?—*A*. I should think they could quite well.

*Q*. What prospects could they offer a first class man in cases of that kind ?—*A*. I do not know.

*Q*. Does it not occur to you that if you had an Imperial Service of the kind, you could get a better type of man on an average, because he would have higher prospects to rise to, and your Local Governments could be supplied with men from the Imperial reservoir of specialists ?—*A*. I am not in favor of an Imperial Branch of specialists. Local conditions vary so much throughout India, it is better to have permanent local officers who can concentrate on the needs of their particular locality. The experience they acquire, knowledge of natives, methods of work and vernacular, is lost if they are to be transferred to other provinces.

*Q*. There would be transferences at different times, because there is the danger of a single man, under a Local Government, if he happened to be a success, staying on in his province. That Local Government would be very lucky, but what are you going to do with your bad bargains ; how is the Local Government going to vet the bad bargains ?—*A*. It would get rid of it, I suppose.

*Q*. How is it going to tell that it has got a bad bargain ?—*A*. You can always tell whether a man is doing his work properly or not.

*Q*. They cannot be certain, can they ?—*A*. (The witness made no reply.)

*Q*. If you have Local Governments employing their own separate specialists, and each specialist is a little pope to himself, there is the chance that there would be a great variation in your standard all over India ; a great variation in the application of standards and methods.—*A*. In what way ?

*Q*. Every man will have his own ideas, unless he is brought into the Imperial Department and made to rub shoulders with experts from other provinces.—*A*. He would acquire particular experience of that particular province, which would be of value to him and to that Government and which would not be of the same value elsewhere.

*Q*. Would not be exactly of the same value, but don't you think it a good thing for a man to be brought in who has experience of one or two, or even a larger number of provinces. Don't you think your regulations with regard to electrical standards would in that way become more uniform ; the views of all provinces would be more freely represented to the Government of India through the Imperial Department ?—*A*. No. You could do it as well through conferences.

*Q*. You would have conferences every year ?—*A*. Yes.

*Q*. Would you all agree in those conferences?—*A*. We get a certain amount of uniformity.

*Q*. You say, " Uniformity means centralization, which in turn means delay." I don't quite follow the necessity of that reasoning. I have known delay to occur through want of uniformity, but cannot recall any instances where uniformity has caused delay.—*A*. Take electrical rules for instance. We are endeavouring now to try and find uniform electrical rules throughout India which is extremely difficult, and we discuss and haggle about small matters suitable in one province and not in another.

*Q*. You prefer to let the provinces go their own way ?—*A*. Yes ; leave them alone and let them push ahead as fast as they can.

*Q*. And the same way in regard to the purchasing of stores : each province would do its own purchasing ? *A*. Each province can do its own purchasing as at present.

*Q*. Would you encourage electrical manufacturing firms to come out to India, and insist on those firms having one shop in each province ? *A*. No, not at all.

*Q*. You would allow that much free trade between provinces ?—*A*. Certainly I do not see that need prevent the officer from purchasing from another province ; they cannot possibly purchase in each province.

*Q*. You do not think it an advantage to become a bigger customer and get special rates ; if you are an Imperial Department you become a bigger and more important customer.—*A*. No, the amount of business is the same.

*Q*. The total business would not be the same ; one man would buy one kind of instrument, another man another kind, and probably if you had a centralized department with a little agreement, you could put up with the same type of instrument.—*A*. We want local purchase as we want to get the work through quickly : at present we take any instrument we find suitable.

*Hon'ble Sir R. N. Mookerjee.*—*Q*. You say, " Ninety per cent. of the students that have passed through the technical colleges are, in my opinion, useless for practical engineering work, owing to the want of practical ability." Is that your experience, or merely an opinion ?—*A*. I can say both, as regards the electrical profession. I am not dealing with other branches ; my note is purely on electrical matters.

*Q*. Have you got any electrical students ?—*A*. Numbers of them.

*Q*. You don't think they have got much experience ?—*A*. Very few are of any use at all.

*Q*. What about those from the technical institutions ?—*A*. Even those from the Victoria Jubilee Technical Institute and from Bangalore. They are theoretically very good, Bangalore particularly, but practically they are of no use.

*Q*. You suggest that they should go through practical training first and then through a course of theoretical education ?—*A*. I suggest that you should first find out, before you give any theoretical training to a student, that he has got the practical aptitude to become an engineer, unless you are going to train him simply for educational work. I cannot say which is the best way ; you can either put him for a year into a theoretical college, then let him take the apprentice's course ; then back again to a theoretical college ; or put him to practical work, see if he can use his hands, and then give him a theoretical course. The technical colleges give a youth a theoretical course and then send him out as an engineer.

*Q*. In the next paragraph you say, " The training in technical colleges fails through not having an adequate staff of competent instructors." Do you infer that practical training cannot be done properly in those colleges ?—*A*. Yes ; they just show the student how to use a tool.

*Q.* With reference to your difficulty in getting stores from England, and in getting them in time, don't you think that if there were a stores department here, that would facilitate matters ?—*A.* Yes.

*Q.* But you cannot have it in every province separately ; it must be an Imperial Department.—*A.* Yes, if there is a representative in each big centre.

*Q.* Then the European firms who set up branch offices here could give every information wanted, and the Imperial Department could place orders with them.—*A.* If there is going to be a representative in the principal centres, it would be of some use ; but if it is going to be located in Simla, it would be of no use.

*President.*—*Q.* He need not be in Simla or Delhi at all. He has no direct dealings with the Viceroy or Commander-in-Chief ; but he could be either in Calcutta or Bombay, and have representatives in other places like Madras, Cawnpore, etc.—*A.* The great advantage in dealing direct with the supplier is that you are able to go and discuss things with him on the spot.

*Hon'ble Sir R. N. Mookerjee.*—*Q.* Would you have all these provinces buying, or should the Government of India buying department arrange for the location of its officers ? Merely because it would be a department of the Government of India, it need not be at Simla or Delhi ; for instance, the Geological and Botanical Surveys are not there ; nor the Survey of India.—*A.* He would be a Government of India officer and would not take the same interest in the work as a local officer.

*Q.* It would not be possible for each Provincial Government to have a superior man ; but the Imperial Government could have its subordinate staff in each province.

*President.*—*Q.* Would you have the Burma Government's buying representative in Bombay or Burma ?—*A.* In Burma.

*Q.* You would find that he cannot get what you wanted there.—*A.* But he would be able to communicate with other provinces I take it.

*Hon'ble Sir R. N. Mookerjee.*—*Q.* You may have a branch there, but generally the man must be under the Government of India. And it may be that he would have to write to England, but it must be done by one chief man ; do you agree to that ?—*A.* Yes, but I do not see why in big cases you should not have one purchaser in Bombay, one in Bengal, etc. In that case I do not see why you want to have one head for the whole lot.

*Q.* Otherwise it would be difficult for him to keep in touch with the whole of India ?—*A.* You are going to have a Commercial Bureau which will keep in touch with the whole of India.

*Q.* You won't get everything from the Commercial Bureau ; the Government must also see that they are buying in the best market. If you leave it to Bombay, the Bombay man will buy dearer than the Calcutta man ; but if one man has control over Bombay and Calcutta, you will find that you can get things cheaper.—*A.* I think time is the great thing ; you want to get your works through.

*Q.* The delay you refer to, and we have also heard a lot of evidence about it, will disappear if we have one man in India.

*Mr. A. Chatterton.*—*Q.* You say there is need in Bombay for Consulting Engineers in electrical work ?—*A.* Yes.

*Q.* What sort of consulting work do they get now ?—*A.* Very little ; there are no Consulting Engineers ; I mean no Consulting Electrical Engineers. There is need for this, because the various municipalities and the people want to undertake electrical schemes and cannot get men to advise them.

*Q.* You suggest then that, as a temporary arrangement, the Government Consulting Engineers should do this work ?—*A.* Certainly.

*Q.* Why do you say that the advice should be given free, or only a small charge made ?—*A.* Because you want to encourage and develop the industry first. I do not see why, when Government is paying an officer, they should not give his services free, so long as they are not out of pocket by it. If they have to engage extra staff, then it should be paid for.

*Q.* How is the private Consulting Engineer to make a start ; would he not meet with competition from the Government Engineers ?—*A.* If there is a private Consulting Engineer who will come forward, let him do the work.

*Q.* Government would presumably have enough work to keep one Consulting Engineer employed ?—*A.* Yes, but their work is not consulting work.

*Q.* Is it executive work ?—*A.* Yes, accounts, clerical, executive.

*Q.* The question is how to make it possible for private individuals of sufficient reputation to start as Consulting Engineers ; would it be wise for Government to bring them out and give them a certain amount of work covered by a retaining fee, and let them do private work ?—*A.* Yes, I do not see why they should not do that.

*Q*. Do you think that men will come out on those terms, in the hope of gradually building up a private consulting practice ?—*A*. It all depends upon the retaining fee.

*Q*. Under existing conditions, you object to Government Consulting Engineers purchasing machinery and plant; you would leave that to the municipalities and local boards ?—*A*. Yes, I do not see why he should be concerned with that.

*Q*. Is that not one of the most important functions he has to perform out here ?—*A*. He would naturally call for tenders, and he would advise as to what they should accept.

*Q*. What is your objection then; to his being responsible for pecuniary transactions ?—*A*. He is Consulting Engineer; why should he do the actual purchasing ?

*Q*. He would have to advise these local bodies to appoint Executive Engineers to do the work under the direction of the Consulting Engineer ?—*A*. They would simply call for tenders and he would recommend a tender to be accepted. They could accept any they liked, and after that they would deal direct with the firm.

*Q*. Would he inspect the work to be carried out by the firm ?—*A*. Yes; to see that it conforms with the tender.

*Q*. In regard to this question of training electrical engineers, you say: "Instruction should therefore be supplemented by experts in the various Government departments and manufacturing firms." Could you develop that idea a little more ?—*A*. I was looking at it from the electrical engineering side, and that is that in electrical engineering a single individual cannot be master in all its multifarious branches. If you are going to give a man a theoretical training as an electrical engineer, he should be taught just as we are in the theoretical colleges [illegible] home by various specialists. There are such a number of branches in electrical engineering that one man cannot possibly give instruction in them all.

*Q*. I think you told Sir R. N. Mookerjee that the present system of training, in which they got the theoretical course of instruction, in such institutions as the Victoria Jubilee Technical Institute and the Indian Institute of Science, Bangalore, did not turn out really practical men ?—*A*. No, they do not.

*Q*. Are these the men you are dealing with in this particular paragraph, where you say that their instruction should be supplemented.—*A*. Yes. I noticed that deficiency in the men who have taken their degrees and come to work with us.

*Q*. When you have got these men from the Institute of Science have they improved in course of time ?—*A*. Occasionally here and there we get a man who is trained up to be of use.

*Q*. What is the defect in those that don't improve ?—*A*. Absolute inability to apply themselves to work; to apply what they have learned.

*Q*. A sort of lack of practical instinct ?—*A*. Yes.

*Q*. Then your contention is that these people have not been trained at all ?—*A*. They might do for educational work, for teaching electrical theory and that sort of thing, but they are no good for practical electrical engineering.

*Q*. You would put them through the practical work first ?—*A*. They must have practice and theory in electrical engineering. I would first satisfy myself that the man has got practical aptitude, by putting him as an apprentice.

*Q*. Would you apprentice him as a mechanical engineer; not as an electrical engineer ?—*A*. No, as a mechanical engineer.

*Q*. Would you advise, for instance, in a place like the Indian Institute of Science, that nobody should be admitted into the electrical course until he had gone through a practical course of mechanical engineering ?—*A*. The Bangalore Institute is not really an institution for training; it is more or less a research institute.

*Q*. Would you suggest that all the students who go to that institution to be trained as electrical engineers should first of all have gone through a course of mechanical engineering?—*A*. Yes, certainly; have gone through a preliminary course of mechanical work.

*Q*. As Electrical Engineer to the Government of Bombay, do you have to deal with the big power schemes ?—*A*. To a certain extent.

*Q*. On behalf of Government ?—*A*. Yes.

*Q*. Have you gone into the question of cost of engineering power in schemes of the type that are now being carried out, such as the Tata scheme; the cost of generating power per unit ?—*A*. I practically know what their supply costs are. I have not worked out whether their scheme is the most profitable one that they could have adopted.

*Q*. You have not gone into the question whether the cost of generating power by the methods now in use is the cheapest and the method the best that could be used with our present knowledge of electrical engineering ?—*A*. I think it is the best.

*Q.* That is to say, on behalf of the Government of Bombay, do you examine schemes critically, and have you got power to turn down a scheme ?—*A.* Not in the least.

*Q.* There is nothing to stop them in putting up a bad scheme ?—*A.* No, not at all, if they have got the money for it.

*Q.* Does the concession depend upon that ? Supposing the promoters of a company apply to the Government of Bombay for an electrical concession, and they propose to generate power in a certain way, constructing reservoirs, pipe lines, etc. Have they to lodge the details of that scheme before they get the concession ?—*A.* Yes, certainly, if it is a question of acquisition of land ; the details would have to be considered.

*Q.* Do you, as Electrical Engineer, criticise that ?—*A.* Yes, it would be sent to me for report.

*Q.* You have the power or right to advise the Government of Bombay to turn it down, because it is a bad engineering scheme ?—*A.* I can point out any defect ; but it is up to the Government to accept my opinion or not. I have no power to turn it down. I have no such authority.

*Q.* Has any estimate been framed as to the amount of power that can be usefully generated to cover the whole needs of Bombay ?—*A.* That question was gone into when Tata's license was first discussed but I cannot tell you the figures off-hand. We went into it when the first scheme was made. We have no definitely prepared scheme on those lines, but when Tata's scheme originally came up, the question of the needs of Bombay was discussed in connection with their scheme ; but we have not made a power survey of the possible requirements of Bombay.

*Q.* Are these concessions like Tata's given in perpetuity, or is it on a lease ?—*A.* The scheme is purchasable by Government ; that is a matter for Government to consider ; the purchase after a certain number of years.

*Q.* Is there any proposal on the part of the Government of Bombay to start a hydraulic survey of the possibilities of power along the coast ?—*A.* I do not know of any such scheme.

*Q.* There is no work being done in that direction except by private enterprise ?—*A.* No.

*Sir F. H. Stewart.*—*Q.* Do electrical problems, as such, vary very much in different parts of the country ?—*A.* They do.

*Q.* You therefore argue that electrical engineers should be provincial ?—*A.* Certainly.

*Q.* Supposing that a problem arose in connection with oil fields, say from the electrical engineering point of view, would it not be better to have a central man to deal with such all over India ?—*A.* Oh no, I do not think so. Take the problems they have in the Burma fields regarding lightning troubles. It is a very difficult matter to deal with in connection with oil fields, but that would not affect us on this side or elsewhere. Bengal would have its troubles in connection with coal mines, which would not concern us.

*Q.* You say that no electrical engineer could be master of all branches, so that if you have them in the provinces, you would want a great many : would it not be a question of expense ?—*A.* The local man would study his particular problem. We have trouble here from salt air, which up-country they do not. We have to study those problems which they do not.

*Q.* Under which department of Government do you come here ?—*A.* Public Works.

*Q.* The Electrical Adviser to Government has no executive authority at all ?—*A.* No.

*Q.* With reference to your suggestion as to hydro-electric power schemes, you think that very much more should be done by Government than has been done hitherto ; that is, in the form of surveys ?—*A.* Yes.

*Q.* Would that be done provincially ?—*A.* It is not done at present, so I cannot say how it should be done.

*Q.* Assume that it will be done in the future, do you think that would be best dealt with provincially ?—*A.* I think so, certainly.

*Mr. G. A. Thomas.*—*Q.* You say, "When it is necessary to prepare detailed plans and estimates, a charge should be made by Government sufficient to cover the cost of the work." Do you suggest that any fee should be paid to the Consulting Engineer ?—*A.* It all depends upon how you pay your Consulting Engineer.

*Q.* Some Consulting Officers do get a fee, *e.g.*, architects and surveyors. Do you consider that a better system than that all fees should be given to Government ?—*A.* It all depends upon the officer and the terms upon which you have employed him.

*Q.* Are you in favour of a man getting less pay from Government and getting fees ?—*A.* I am not aware that Government overpays their servants at present.

*Q.* You say, "This Government is now prescribing standard pressures in their licenses." Is that quite a new thing?—*A.* Yes, when I say "prescribing" I mean recommending it; it is being adopted.

*Q.* You don't lay it down in the licenses? -*A.* In new licenses we are now adopting it. We cannot upset the old licenses; that can only be done by legislation.

*Q.* Have not Government the power to alter the form of licenses?—*A.* Under the Electricity Act they can make alterations in licenses.

*Sir D. J. Tata.*—*Q.* In your written evidence you say, with reference to hydro-electric power schemes: "A survey showing places where this can be done economically would be most valuable." After these surveys are held, how are they going to be utilized?—*A.* I would not have surveys done until I knew there was a demand for power. I would not survey the ghats until there was first a demand. First ascertain the possible requirements and then survey.

*Q.* Ascertain if there was a market, and whether it was possible to supply that market with power?—*A.* Yes, that is the idea: otherwise there would be a waste of money.

*Q.* At the same time a survey which tells you where power is obtainable would be an advantage, because very probably in some district there might be an opening for some industry, and for want of power they might not care to establish the industry; whereas if they knew that electric power was obtainable they might try to start one. Some general survey should be made and the public told where power is obtainable; then if there was an industry anywhere there, Government might survey the district and say that that industry might get the help of electric power.—*A.* Yes. A general survey should be made.

*Q.* Then you say, "The attempt to treat electricity as a highly dangerous source of energy which must be administered by a central authority is, in these days, when electrical experts abound, entirely unnecessary." To what places do you refer where "experts abound" in India?—*A.* There are numbers all over the world, not in India.

*Q.* The reference in the sentence "The attempt to treat electricity as a highly dangerous source of energy which must be administered by a central authority is, in these days, when electrical experts abound, entirely unnecessary" is to India?—*A.* No. I consider decentralization of authority should be given to all provinces where there is considerable electrical development.

*Q.* In the very first sentence of your evidence you practically hint that there are no experts in India.—*A.* There is a large field for experts, but there are very few in India. They would have to be brought in.

*Mr. C. E. Low.*—*Q.* In addition to those cases you mention at the end of your evidence, did you see anything of the case in which one kind of testing plant was ordered and another supplied, probably a year or two ago?—*A.* Yes.

*Q.* The point which I am concerned with at present is that one make of plant was ordered as specially suitable to Indian conditions, especially Bombay conditions, and another kind supplied, owing to apparently their not appreciating local conditions?—*A.* Yes.

*Q.* Is that at all frequent?—*A.* That is the only particular case as regards instruments; but if you take the case of plant, for instance, I have had trouble with plant through their giving us too good a material. I have had plant supplied by the Director-General of Stores which was too good for the class of labour out here.

*Q.* Are there any branches or representatives of makers of electrical plant in this country?—*A.* Oh yes.

*Q.* As for instance, Callender's Cable Co?—*A.* Yes, and the British Westinghouse, and the General Electric Co.

*Q.* Do they keep men of the type that could put up installations, and do the necessary repairs, etc.?—*A.* No, they import them, or they may have one or two. They do import them when they get big installation contracts like mills, etc.

*Q.* Simply *ad hoc?* *A.* Yes, the majority do not keep a big staff out here.

*Q.* I dare say you remember the proposal which emanated from the Government of India or the India Office, with reference to branch firms. One important condition made in that proposal was that a branch firm out here should receive orders direct, if it supplied the kind of stuff for the erection of which expert skill was needed and if it kept an expert staff to erect it. Do the electrical firms completely fulfil that requirement in respect of the branches here?—*A.* Some of them do; for instance, the suppliers of batteries. They keep men out here—the Tudor Electric Co.

*Q*. To what extent do those men, as employed by those branches of firms out here, keep their eye on local conditions, and make suggestions that this and that might be better from the point of view of the Indian climate ?—*A*. They do, as far as the Battery people are concerned. I get very valuable suggestions.

*Q*. For instance, do they say that you should eliminate rubber parts and replace them by something else ?—*A*. Yes.

*Q*. We had serious complaints last year, in respect of coal fields installations. You have two-thirds under the Bengal and Orissa Government, and one-third under the Government of Bengal, and the boundary sometimes passes through the property of individual concerns. There were very serious complaints about the difference in respect to standards adopted by the two Inspectors of the Bengal and Orissa and Bengal Governments. How do you propose to get over that difficulty without any central authority ?—*A*. By appeal to Local Government or by adopting standard rules instead of Indian rules.

*Q*. Who makes them ?—*A*. The Government of India.

*Q*. A centralizing authority ?—*A*. Yes. We could have adopted the home rules practically without any change and so avoided ambiguity or disputes.

*Q*. Another complaint made was this, that the electrical inspector in a certain province was less well qualified than the man in charge of a big central generating concern which he was supposed to be controlling, which made it difficult for him to criticise a better man than himself.—*A*. That is a fault in your rules which require an electrical inspector to have the work done to his approval. The Board of Trade does not lay that down.

*Q*. Supposing you are laying a line and have certain specifications about earths, and supposing that the electrical inspector says that this earthing is not in accordance with requirements, and the man, who is laying the line and is a much better qualified man, says they are. That question comes up to the Local Government. Supposing the electrical inspector, who is the best obtainable for the money that the Local Government can afford, is proved to be wrong, don't you think that would be a very serious cause of public inconvenience ?—*A*. It may be; it is a small matter. There is always an appeal against an inspector's decision.

*Q*. It causes serious complaints to arise from the commercial firms concerned.—*A*. If he is wrong, get a better man.

*Q*. That is a question of money. You have small provinces with one or two installations, and there is really no work for a man on more than a certain salary ; or else you have got to pay a man and keep a big margin of reserve not used. You pay a man Rs. 1,500 for doing Rs. 600 worth of work. You very rightly point out the fact that no man can be an expert in all aspects of electrical work. You get a small province where you have one coal mining installation, and say a hydro-electric plant and one or two town installations, and possibly an electro-metallurgical plant. I speak of cases which might occur in practice. Now, none of these is very, very large. Do you think it would be easy for a single electrical inspector to deal with all these matters ?—*A*. I do not see why not. The electrical inspector is really applying rules to the best of his discretion to see that the work is safe.

*Q*. Then why do you lay so much emphasis on the importance of the local aspect of all these questions, if they are all the same as regards the work of the electrical inspector ; why do you think it is so necessary to decentralize ?—*A*. Simply because you get such entirely different conditions in different parts of India.

*Q*. You get very different conditions in the same province, the Deccan and Konkan.—*A*. You are talking about coal mines ; we do not bother about their requirements in Bombay at all, just as we are not concerned with oil fields as in Burma.

*Q*. You say the local conditions are important, but the nature of the plant in use does not matter ; that one man can look after and be responsible for the administration of the law with regard to plant of most widely different types ; but you don't take such a man with reference to the local conditions of the different types ; is that a fair rendering of what you mean ?

*President*.—*Q*. You say the rules are the same, and you might apply the home rules for all the difference that exists ; therefore you say that any inspector can see that the rules are properly carried out, but at the same time you say that decentralization is necessary because of the difference in local conditions. Is that not apparently inconsistent ?—*A*. No, because the Government electrical officer is not simply applying rules ; he is doing executive work—provincial work on behalf of Government.

*Mr. C. E. Low*.—*Q*. To what extent does he do this work on behalf of Government ? What Government electrical installations, put up and maintained by Government, are there ?—*A*. Numbers at Aden and Karachi ; all over the Presidency.

*Q.* Are you concerned with the administration of the Electricity Act?—*A.* Yes, in advising Government in connection with it, and in applying rules.

*President.*—*Q.* What are the installations put up on behalf of Government?—*A.* All large Government institutions, like jails, electric lighting, power for presses, etc.

*Mr. C. E. Low.*—*Q.* Are they at all large compared with the big industrial concerns?—*A.* No, there are a large number of them, that is all; hospitals and such things.

*Q.* That, from our point of view, is a minor and less important portion. We are talking about the administration of the Electricity Act. After all, these Government installations are small things industrially, from the point of view of the public, and the consumers and makers of electrical machinery.—*A.* Yes, but is a big thing as regards the duties of the Government engineer.

*Q.* You say that "the training in technical colleges fails through not having an adequate staff of competent instructors." You don't mean that is the only cause; also having a number of unsuitable pupils you would say?—*A.* That is one of the causes. They want specialists to give special courses in certain branches.

*Q.* What would be the effect on the existing material in the way of pupils they get, if they had a large and more differentiated staff?—*A.* I am assuming that you will have men who will be able to be trained as engineers.

*Q.* You don't think it is worth doing unless you alter the class of the pupils; you think it would be a waste of time?—*A.* Yes, in a large percentage of cases.

*Sir D. J. Tata.*—*Q.* I think in answer to a question by Mr. Chatterton you said that Government did not concern itself as to the economic side of any scheme put before it in regard to hydro-electric power. Was that the answer you gave?—*A.* Government would not sanction a scheme and allow acquisition of land, if the scheme was not feasible on the face of the information put before it.

*Mr. C. E. Low.*—I think he said the economical side; whether it was the best.

*Sir D. J. Tata.*—*Q.* Whether the scheme was the best under the circumstances? But Government does yet these things on the hydro-electric side?—*A.* Certainly.

*Q.* Your part in vetting a scheme consists in saying whether it is in any way dangerous for the safety of the public?—*A.* Whether it is a practicable proposal; not necessarily whether it is the best scheme: but whether it is a thoroughly practicable scheme. That is the whole point.

*Q.* And whether the public safety is secure?—*A.* Yes.

*Q.* And with reference to the hydraulic part to see to the state of the dam, so that there is no chance of the dam breaking and endangering the country. Government don't say for instance whether the lines of the dam could be altered.—*A.* No.

*Mr. A. Chatterton.*—*Q.* There is no public enquiry made?—*A.* When the concession is about to be granted, then the public is allowed to raise objections to it publicly.

*Sir D. J. Tata.*—*Q.* Do Government take any objection to the use of any particular kind of machinery? Is it part of your province to say what machinery should be employed? Do you enquire as to what machinery the promoters are getting?—*A.* In what way? The type of machine?

*Q.* Yes, the type of machine?—*A.* No, not if it answered their purpose. It is not up to me to say that they should use another type.

*President.*—*Q.* Whether it came from America or England?—*A.* You said "type," not make.

*Sir D. J. Tata.*—*Q.* I did not want to put it so plainly, that is all. As Electrical Engineer you have no prejudice against any special machinery as long as it is good?—*A.* No.

*President.*—*Q.* You said Government should not waste money in making a survey for water power if there was no industry in that district to be served by water power?—*A.* If it was not likely to be used. It would not pay to make expensive surveys. You might make a preliminary survey to see if it was capable of development.

*Q.* There is a useful way in which you might advance, and that is by means of a reconnaisance survey. You could ascertain if you had suitable land for a power scheme, say, on the Western Ghats, and the people would provide the industries at once for it. Any amount of industries would spring up if you had the electrical power necessary.—*A.* Yes, certainly, I did not give evidence to the contrary effect.

*Q.* You say then that there should be reconnaissance surveys ?—*A.* Yes, but before a detailed survey is made, we might ascertain if the power is required.

*Q.* That is no part of your duty ?—*A.* No.

*Q.* Is it part of anybody's duty here ?—*A.* No, not unless special instructions are given.

*Q.* Have you advised Government to have this done ?—*A.* No.

*Q.* Do you think that in a matter of this kind there is any other body better able to take it up than the Local Government ?—*A.* I think there is no one better than the Local Government.

*Q.* Who is to advise the Local Government in this matter ?—*A.* They can advise themselves, when evidence for the desirability of such course comes to their notice.

### WITNESS NO. 334.

THE HON'BLE MR. G. F. KEATINGE, C.I.E., I. C. S., *Director of Agriculture, Bombay.*

*Hon'ble Mr. G. Keatinge.*

### WRITTEN EVIDENCE.

*The Question of Financing or Subsidizing certain Industries.*

1. I think that there can be no doubt that except in the case of well established industries such as cotton gins, presses, etc., capital in the mofussil is very shy, and I believe that even in large centres such as Bombay or Ahmedabad the number of men in whom the public have sufficient confidence to entrust them with their investments for ventures of a novel kind are very few. In the mofussil I certainly think that it would draw local capital to any new venture if it were known that Government were in some way associated with the enterprise. If Government are to associate themselves with the foundation and early development of certain industries, as I think is desirable, it is essential that they shall have at their disposal officers competent to advise both as to the economic situation and as to the technical details of such industries. Probably the best means of securing such officers, in the first instance, would be to engage experienced men from Europe or America for short terms of service. In matters where a good case can be made out for the establishment of an industry in any locality, and where people of the right standing and capacity are anxious to take the matter up and are willing to put a fair amount of capital into it. I think that a guarantee by Government of (say) 4 per cent. interest and the knowledge that the industry was under some general Government supervision would do much to attract local capital, and probably this would be the best way to give financial assistance.

The other ways in which financial assistance can be given. viz., an initial loan free of interest, an initial subsidy, annual subventions, etc., are no doubt very valuable aids to any industry, but for practical purposes it seems to me that they can be given on a large scale only where the Government can command large surplus revenues, or where steps can be taken for Government to recoup itself at a comparatively early date. The only country where I have had any opportunity of inquiring into the effect of such Government action was in Formosa, in connection with the sugar industry. In that case practically no Formosan capital was forthcoming, and Japanese capital on which the industry was bound to depend was scanty. The Japanese Government therefore made advances free of interest for a term of years to substantial Japanese companies to assist them in meeting the initial outlay, and granted annual subventions to encourage them to provide for the requisite scientific control of the cane growing and of the sugar making. In this case, however, there was practically no risk to Government, but on the contrary there was a practical certainty that Government would be able to recoup themselves amply in a short time, since the price of sugar in the Japanese Empire is absolutely regulated by large customs duties on the one hand and by a consumption tax (levied at the factories) on the other hand, and these two can be adjusted from time to time so as to leave a good margin for profit to any up-to-date factory run on reasonably efficient lines. I should imagine that by this time the Japanese Government must have well recouped its outlay by means of the consumption tax. Indeed, when there exists a system which includes heavy Government subsidies, involving a considerable measure of Government control, accompanied by heavy import duties and an adjustable consumption tax, the industry to which this system is applied has many of the features of a Government monopoly, and can easily be turned into a source of profit to Government. It is, of course, a fact that in the instance given above the profit is secured and maintained at the cost of the sugar consumer within the Japanese Empire ; and it is only in cases where the natural facilities and the available skill are adequate that this system can be applied without undue cost to the consumer. In such cases, however, it has its merits, not only as a means of creating new industries, but also as a means of placing indirect taxation on a broad basis. If pushed very far it amounts to State Socialism. As regards technical skill in sugar making in Formosa, there was a large amount of such skill available in the early stages of creating the industry, for numbers of Japanese engineers and chemists had gone in advance to the Hawaiian Islands and had there undergone a thorough training in the process in the sugar factories there. I do not know how far the Japanese Government subsidized these men, but I should imagine that the cost of doing so was very little, for these men arrived in Hawaii quite unofficially and were content to engage themselves in the first instance at the sugar factories in the very lowest posts, and then, by merit and hard work, to make their way in a short time to the higher and more responsible posts on the sugar factories and plantations there. After this severe practical training they returned to Formosa as the managers and engineers of sugar factories. The effect of the stimulus given by the Japanese Government in Formosa to the sugar industry has been to create a large industry in a very short time out of nothing. Everyone has profited except the Chinese land-owner, but on the other hand I think that the effect of forcing the pace led to an under-estimation of the natural difficulties and to an over-lavish initial expenditure in some of the subsidized factories.

Development of certain industries.

2. In the matter of making suggestions as regards particular industries I propose to confine myself to a few matters closely connected with agriculture, viz., sugar, oil, milk products and meat.

Sugar.

(a) *Sugar.*—To the extent of its irrigation facilities the Deccan has admirable facilities for sugar production. At present these irrigation facilities are very limited, and the sugarcane crop grown on the water allotted to it is worked up into gur, or raw sugar consisting of all the solid contents of the cane juice. Some cultivators grow excellent cane, and the industry so far as it goes is a profitable one, but the average production of cane is much lower than it should be, and the losses that occur in the manufacture of gur by primitive methods are large. It has now been decided steadily to increase the area under canal irrigation in the Deccan and a large programme has been drawn up.

The following canals will increase the area under sugarcane by about the acreage mentioned against them, viz. :—

| | Acres. |
|---|---|
| Godavari Canals (just completed) .. .. .. | 12,000 |
| Praval Canals (almost ready) .. .. .. | 12,000 |
| Nira Right Bank Canal (under construction) .. .. | 20,000 |
| Gokak Canal (sanctioned) .. .. .. | 20,000 |
| Total .. | 64,000 |

and there are many other canals to follow. As these new canals are opened, and as cane growing increases it is probable that if all the produce is made into gur there will be a glut of gur for local consumption and possibly a disastrous fall in price. The manufacture of sugar will then become necessary. In order that sugar factories may be started they must be able effectively to control a certain area of land on which they can grow a large part of their own cane, and this area must be compact, so as to allow cheap and rapid transport of cane to the factory. This involves the crux of the situation, since the land is at present occupied in small lots by the very large number of land-holders, and it is not possible for a projected company to obtain a large block of land on a secure tenure. I believe that there is only one way in which this difficulty can be overcome without injustice to the present occupants, and this would involve legislation. The plan would be this—When the alignment of a new canal is settled and it is decided to allot perennial water to a definite area (say 20,000 acres) the area to which perennial irrigation can be best applied should be settled by a survey. The holdings in this area should then be pooled and squared, each cultivator receiving (say) three-fourths of the area which he held before, with water rights attached, and the remaining one-fourth should be retained by Government for assignment, preferably on a long lease, to a sugar company. This area would be in one block and would enable a sugar company to get to work under optimum conditions. A cultivator who formerly had 20 acres of dry-crop land in a region of precarious rainfall would now have 15 acres with water rights attached, and would be in a much better position than he was before. In this way a profitable sugar industry might be created and the future of the Deccan Canals assured. Incidentally the arrangement would greatly improve irrigation practices, check damage to the land from over-irrigation, and enable the land under the canal to be developed in an orderly and businesslike fashion, to the great advantage of the cultivators and the public.

(b) *Oil.*—It is a matter of common remark amongst people interested in the development of Indian industries that while the country produces an abundance of oil-seeds of various kinds, the bulk of the produce exported in the form of oil-seeds, and it is assumed that it would be more profitable to India to export the produce in the form of oil and of oil-cake. A certain number of oil mills exist in India and cater for the local demand for oil, but no one seems to know whether foreign export can be carried on most profitably in the form of oil or of seeds.

Technical monographs on the subject have been written, but the economic side of the question s very difficult to ascertain, and the public need to be enlightened in the matter.

Milk products.

(c) *Milk products and meat.*—India is a great cattle producing country. In the Bombay Presidency (excluding Sind) there are over 9 million cattle (including buffaloes), and the number might be increased almost indefinitely if the keeping of animals were made more profitable, since concentrated food (oil-seeds and oil-cake) is produced in the country, and the production of additional fodder is only a matter of what pays best. But as a matter of fact cattle keeping is seldom a profitable matter, as things are at present, except in localities where abundant free grazing is available. The cows (two million) are kept almost solely to produce plough cattle, and the she buffaloes (one million) to produce milk. The production and maintenance of plough cattle is, no doubt, absolutely necessary, but it is a necessary evil, and a strain on the resources of cultivators. In many countries under these conditions the cattle would be produced with profit and would be a great source of wealth. As regards buffaloes, which are the milk producers of the country, the business is not organized, and except near large cities milk has generally to be marketed in the form of ghi, which is not very profitable. If the trade in milk and milk products is to be developed it is necessary to bring into existence n the milk producing districts organizations which can arrange to transport to large towns whole milk or to work up the milk into high class products, butter, ghi, cassein, lactose. This s already done to some extent in Bombay, and Bombay butter is exported in tins to the far East (Singapore, Java, etc.). In Gujarat the Military Dairy authorities make butter on a large scale at Ahmedabad, and a company has recently been started at Nadiad which aims at sending pasteurized milk to Bombay, makes butter and superior ghi, and (I think) intends to produce cassein and lactose. I think that similar dairy companies could be started with profit in other ocalities, and that there would be a good demand both in India and abroad for the produce.

Meat.

As regards meat, I should roughly estimate that of the 9 million animals mentioned at least 2 million must be valueless for any purpose but slaughter, and even if the present useless animals were killed off, about 10 per cent. or 900,000 a year would normally come into the category of animals useless for any purpose but slaughter, which, at Rs. 50 apiece, would represent Rs. 4½ crores a year. In India the demand for meat is, of course, very small, but the world's demand for meat is enormous, and even before the war prices were rapidly rising. To obtain a good market abroad for Indian meat would of necessity involve efficient arrangements for dealing with it by effective methods; but, granting that, I can think of no industry which could so readily be called into existence or which would yield such large results, direct and indirect. It may be argued that the present export of hides and bones represents some part of the value of useless animals. This is true to some extent, but the hides are badly flayed, and the bones are not selected for industrial purposes, and the other products of slaughter—meat, blood and sinews—are entirely wasted. There is at present a small export of dried meat from Bombay, but it is so small and so badly organized as to be almost negligible. I am far from ignoring the fact that the bulk of the people in this country are strongly opposed to the slaughter of cattle, but I state the economic point of view in consideration for the fact that there are large numbers of persons who have no objection to slaughter cattle. Even taking the buffaloes into consideration, with regard to which the same religious objections do not exist, the facts are remarkable. We have in this Presidency (excluding Sind) one million she buffaloes and 240,000 male buffaloes. Practically speaking it is only in the Konkan and the adjoining rice tract that male buffaloes are used for draught. In most parts the male calves are simply not reared because they are of no value. They are given no food and allowed to die. The figures for the Kaira District which contains the largest number of buffaloes are instructive, viz.:—

| | |
|---|---|
| Cow buffaloes .. .. .. .. | 116,000 |
| Bull buffaloes .. .. .. .. | 700 |
| Castrated males .. .. .. .. | 15 |

showing that the males are not reared. If there was any organization that would give the male buffalo its normal price in the markets of the world it would pay to rear them, and the number might be as large as that of the cow buffaloes.

The indirect advantages to the country from any organization which would tend to eliminate the unfit animals which now reproduce themselves and consume the fodder needed for the useful animals would be enormous, and the profit that might be secured to cultivators if they could secure the full value of their animals would at once put the breeding industry on a profitable basis, and would very materially improve the agriculture of the country.

### Oral Evidence, 26th November 1917.

*Mr. A. Chatterton.*—*Q.* As to the possibility of utilizing the tail water that goes to waste from the electrical generating stations below the Ghats, have you gone into the matter at all as to whether it would be useful for irrigation?—*A.* I have talked it over with the engineers. I understand that it is chiefly an engineering question. It is a difficult country below the

Ghats and the problem is how far it would pay. I have made a report as to the possibility of utilizing it.

*Q*. Have you a mechanical engineer attached to your department ?—*A*. Yes.

*Q*. Have you employed him on making any investigation of this problem ?—*A*. He erects pumping plants for cultivators, but he has not made any investigation especially with regard to the tail water.

*Q*. Is there any agricultural difficulty about growing crops there ?—*A*. It is an area of heavy rainfall for a short period. Generally speaking, during the monsoon nobody would want water except in exceptional seasons, and if you grow valuable crops you would require good drainage. There would be difficulty in working on a large scale because the country is very hilly and undulating, and another point is that the holdings are extremely broken up and small.

*Q*. Is there any Government waste land there ?—*A*. Hills. Not flat country, I believe.

*Q*. Is there any great need for irrigation below the Ghats owing to the fact that although there is heavy rainfall for three months there is no rainfall for the rest of the year ? Does that restrict cultivation largely ?—*A*. I think in the more level tracts on the sea coast sugar can be grown with profit. I do not think it is such a profitable area as the Deccan, but some varieties could be grown profitably. It would need thorough drainage in many cases.

*Q*. The slope of land is sufficient to make it easy to provide drainage ?—*A*. Yes.

*Q*. Is the soil suitable for sugarcane ?—*A*. In some places. It is not so suitable as the Deccan.

*Q*. What other crops could you grow ?—*A*. Onions, vegetables, lucerne grass, and dairying can be done.

*Q*. Do you not think that the problem of the utilization of the tail water from hydro-electric schemes on the edge of the Ghats requires careful investigation ?—*A*. Certainly.

*Q*. Akin to this question of irrigation below the Ghats and the utilization of the tail waters there is a similar question in Sind about the utilization of the waters of the Indus. Have the Agricultural Department gone into the question as to whether it would be practicable to develop irrigation by pumping ?—*A*. We have got a pump on the banks of the Indus at Sukkur. But there is this difficulty in many parts. If you put up a pump on the bank at low water level, it would be flooded and washed away in high water time, and if you put it up at high water level, the water would go away and it would be a mile distant at low water time. These, of course, are more or less engineering difficulties which can be got over.

*Q*. The question is, supposing you had got over them, would it be likely to be profitable to pump water from the Indus for irrigation ?—*A*. Not with the existing methods of Sind cultivators. They are very bad cultivators mostly.

*Q*. Is there any reasonable prospect of introducing intensive cultivation in Sind ?—*A*. The development of Sind is chiefly a matter of malaria. For one-third of the year the people are shaking with fever, for another third they are prostrated with heat and in the cold weather many persons get pneumonia. These conditions check population, prevent outsiders from settling in Sind, and greatly reduce the value of the existing labour supply.

*Q*. There is no good prospect ?—*A*. I do not think there is, but I am not well acquainted with Sind.

*Q*. You say you have an agricultural engineer. What are his duties ?—*A*. He erects and repairs power plants for pumping and for cane-crushing ; he does well-boring. He runs two steam ploughs, and has a workshop in Poona, where he designs improvements and experiments.

*Q*. Can you put in a list of the installations that he has carried out and give some idea as to what the Agricultural Engineer has done ?—*A*. I can ask* him to do that.

*Q*. I saw myself some experiments with steam ploughs. Are those going on ?—*A*. One in the Dharwar District and one in Gujarat.

*Q*. Is steam ploughing commercially successful ?—*A*. The plough in Gujarat has paid, but the one in Dharwar has not paid interest, though it has covered working expenses. It depends entirely on what rate you fix for ploughing. I think the rate can be put up. What we were doing in Dharwar cannot be done by cattle plough. We are ploughing 16 inches deep in very heavy soil.

*Q*. The money was advanced to the cultivators as *takavi* loans ?—*A*. Yes.

*Q*. Are you making any investigation of the sub-soil water ?—*A*. We have bored in a great many different places and we are now trying to interpret our results.

---

* Witness subsequently sent in a note by Mr. Schutte, Agricultural Engineer, Bombay (*vide* Appendix B printed after oral evidence).

*Q.* The Agricultural Department published two bulletins recommending a certain type f so called "water finder." Were borings ever made to that the conclusions arrived at by the se of that instrument ?—*A.* There is a bulletin on the use of the automatic water finder and nother on the mechanical side of boring.

*Q.* There were two bulletins on the automatic water finder. What was the ultimate esult of these experiments ?—*A.* There is no definite proved result. We used it in a number f places and obtained indications. Dr. Mann who has gone into it does believe that, with proper interpretation, the instrument gives valuable indications. The interpretation is omewhat difficult.

*Q.* He has published a statement that it is a valuable instrument. Has he published any vidence to show that it is a valuable instrument ?—*A.* I think the evidence is contained in he bulletin.

*Q.* He says that he has obtained indications that there is water in certain places, but here is no evidence that he has verified it.—*A.* In some cases it was verified.

*Q.* It is very difficult to put a hole down into a rock without finding some water in it ?—*A.* There are a great many places in the Deccan where no water can be found.

*Q.* But when you go down ?—*A.* There are many places where none at all is found.

*Q.* You have some notes on the manufacture of sugar and you say, "The following canals will increase the area under sugarcane by about 64,000 acres," and you continue, "As these new canals are opened and as cane-growing increases it is probable that if all the produce is made into *gur* there will be a glut of *gur* for local consumption and possibly a disastrous fall n price." There would be a glut of *gur* as now manufactured. But if you went and introduced improved methods of manufacturing *gur* so that *gur* could be kept on from one eason to another, would there be any likelihood of glut ?—*A.* No.

*Q.* Is the glut due to the fact that the *gur* could not be kept for a long time ?—*A.* Yes.

*Q.* And that it would have to be consumed in some reasonable time ?—*A.* To a certain extent it is so. Some of the *gur* that is made in the Deccan does keep well. During the monoon it becomes moist and sticky. There may be a tendency to glut if we merely increase our output.

*Q.* The price of *gur* in the Deccan used to be so high that it was more profitable to make *gur* than sugar ?—*A.* That was so until 1911. Since then the relative prices of *gur* and sugar have changed very considerably. I have recent figures. I submit* figures showing the change. It is very marked since the beginning of the war, but it took place three years before the war.

[The note is given by the witness.]

*Q.* Can you suggest any reason for this change ?—*A.* I fancy—I do not know really the change is in the world's price of sugar. As far as India is concerned, what they wish sugar for is tea drinking and there has been a great increase of tea drinking.

*Q.* Is there a marked change in the habits of the people in regard to the appreciation of *gur* ?—*A.* For cooking purposes and making of sweets they prefer it, but for tea drinking sugar is universally used, and that is greatly on the increase.

*Q.* Are you encouraging the use of power plants for sugarcane crushing ?—*A.* Yes.

*Q.* Have many of them been installed in the Deccan ?—*A.* About 15 or 20 I think.

*Q.* Are there any details of these given in the reports of the Agricultural Engineer ?—*A.* He certainly mentions them, but whether he gives details I do not remember.

*Q.* Has he put up any in any oil mills at all ?—*A.* I think he put up one—a small thing as an adjunct to a pumping plant.

*Q.* You have no experience of the methods of oil crushing or extricating oil such as are recommended in the Bombay monograph on oilseeds ?—*A.* No.

*Q.* Has that monograph had any influence on the industrial development ?—*A.* I could not say. We considered it from the agricultural point of view. There was one argument in it with regard to the feeding with oil cakes, and the conclusion which it came to was not correct.

*Q.* I suppose there is a prejudice on the part of the ryots against using oil cake rather than oilseed ?—*A.* The cotton seed is cheaper than the cake. The feeding value of the cotton seed is more and it is generally more economical to feed with cotton seed than cotton cake.

*Q.* That depends upon the price ?—*A.* Yes. I mean, at the present price.

*Q.* If you supply cotton cake from the cotton seed oil mills at a reasonable price do you think the people will take to it ?—*A.* Yes.

*Q.* As regards the claim put forward that the cotton seed cake is better than cotton seed for cattle, have any experiments been made to obtain definite results regarding that point ?—

---

* See Appendix A printed after oral evidence.

*Hon'ble Mr. G. F. Keatinge.*

*A.* We have not made experiments, nothing elaborate so far. We have fed with both. The only place where we can get cotton cake is Navsari, and to bring it to the Deccan is a long way. We do bring it as a matter of fact up to Poona and we feed with it up there.

*Q.* You have no decisive results to show whether it is better or worse than the seed ?—*A.* I do not know of any myself. I do not think that it is a matter on which they have made any elaborate investigation.

*Q.* Is the cake used at all for manure ?—*A.* Practically not. I think we have tried it. The cake that we use for manures is the castor cake and safflower cake.

*Q.* The economic changes which have come about owing to the introduction of kerosine oil—have they materially affected agriculture owing to the fact that a large quantity of vegetable oil which was formerly burnt in lamps is not now wanted and the oil is consequently not expressed and so there is less oil cake available ?—*A.* I have never heard of it. I think there is always oil cake available for anyone who wants it. That is just my general impression.

*Q.* There is no shortage of oil cake ?—*A.* On the contrary, I believe that the trouble is that the mills are not able to dispose of it all. The oil cake has gone up a great deal in price of late years. That may be partly due to the cause you mention. I have not considered whether that was the cause.

*Q.* It is obvious that the substitution of vegetable oil by mineral oil must affect the market for cake ?—*A.* Yes.

*Q.* And substitution has taken place on a very large scale ?—*A.* Yes.

*Q.* And the question is whether it has affected agriculture unfavourably ?—*A.* The price of cake has gone up certainly, I believe something like doubled in the last ten or twenty years.

*Q.* In regard to a suggestion of yours about dried meat and the export trade—is the same, that is done in the Central Provinces ?—*A.* Yes.

*Q.* Does the export of dried meat from Bombay to which you refer come from the Central Provinces, or is it manufactured in Bombay ?—*A.* I believe it is made in Bombay.

*Q.* There are no slaughter-houses such as those in the Central Provinces ?—*A.* There is one near Bombay outside the municipal limit. It is apart from the one which is meant for the Bombay City.

*Q.* Is the meat used for export ?—*A.* It is chiefly dried and exported. But it is on a small scale.

*Q.* Have any of these attempts matured with regard to the manufacture of milk powder and dried milk ?—*A.* As regards milk powder I cannot say. A good dairying company was about to put it up, but they have got large military orders for milk and it is possible that they do not intend to work it up. There is a certain amount of cassein made in Gujarat and there was one company which was working it on a large scale.

*Q.* Cassein would be a by-product ?—*A.* It is the product of a butter factory. I think they were intending to start making lactose, but whether it has materialized I cannot say.

*Q.* There are considerable number of dairy products exported. Are they from Gujarat District ?—*A.* The cream for butter making is from Gujarat, mainly the district between Ahmedabad and Baroda. A lot of ghi comes in from Kathiawar, but it is rather too far from Kathiawar to send cream. It is a fertile district.

*Q.* There is a very large area of grazing land ?—*A.* Yes, in Kathiawar. But the cream comes from non-grazing areas. The animals are all stall fed. There is no free grazing, or water facility, but it is due to the extreme care and competence of the people. They grow fodder crops.

*Sir F. H. Stewart.*—*Q.* You recommend the appointment of short-term experts from Europe or America for the purpose of developing or establishing certain industries. In conjunction with these you pre-suppose the existence of a permanent Director of Industries ?—*A.* Yes.

*Hon'ble Sir R. N. Mookerjee.*—You say that Government may grant four per cent. interest. Do you stick to that now ?—*A.* I only made a suggestion. It may be higher.

*Q.* Would you like to alter that ?—*A.* I wrote that one and a half years ago.

*Mr. G. A. Thomas.*—*Q.* What is the minimum area required in order that a sugarcane factory may work profitably ?—*A.* It is difficult to give the actual minimum area.

*Q.* Five thousand acres ?—*A.* A very good area would be 2,000 acres under sugarcane, and with a three years' rotation, that would mean an estate of 6,000 acres. That would be a good area.

*Q.* Talking about canals which are just completed, or almost ready, or under construction, or sanctioned, you say that the sugarcane area will be increased by 64,000 acres ?—*A.* That was my rough estimate.

*Q.* Do you think that the whole of that can be made available for estate sugar factories ?—*A.* No. Not the whole of that.

*Q.* You would get perhaps 60,000 acres which would be available for that purpose ?—*A.* For growing sugarcane.

*Q.* It would be enough to maintain ten factories ?—*A.* There is generally plenty of land. It is a question of water. Supposing that the canal authorities were to assign for cane-growing sufficient water to grow 60,000 acres of cane, and that there were 10 factories each growing 2,000 acres of cane a year, this would mean that the factory estates would use up one-third of the canal water available for cane-growing.

*Q.* I suppose the output of ten factories will be very small in comparison with the consumption of sugar in the Bombay Presidency ?—*A.* I think it will make a very great difference.

*Q.* Have you any idea as to the amount of imported sugar into the Presidency ?—*A.* No.

*Q.* Your proposal is that you should acquire from the existing cultivator the whole of his land and pool it and return to him three-fourths or an equivalent of three-fourths and sell the remainder to the factory or company ?—*A.* Yes.

*Q.* Do you propose that it should be done under the existing Land Acquisition Act ?—*A.* No.

*Q.* You are aware that under the Land Acquisition Act land should be required for " public purpose " and the Local Government is the sole arbitrator of what " public purpose " is, and in different parts of India there will be different interpretations placed upon the phrase " public purpose ? "—*A.* Yes.

*Q.* And you suggest that a special Act should be introduced for the whole of India ?—*A.* Yes. I think it will be desirable to make it quite clear.

*Q.* Do you think it will meet with much opposition ?—*A.* It is difficult to say. It will meet with some opposition.

*Q.* Do you think it will be acceptable to the public ?—*A.* If the matter is clearly explained to them I think it would.

*Q.* If the cultivator was threatened with the prospect of his land being taken up in this way, he might be willing to lease it to the company say for fifty years ?—*A.* I think that very few cultivators will lease the whole of their land for fifty years.

*Q.* Nothing less than fifty years would be useful ?—*A.* No.

*Q.* Do you think that factories which have got 5,000 or 6,000 acres of their own would induce cultivators to grow sugarcane and sell it to them ?—*A.* Some of them.

*Q.* Then they would actually command more than 6,000 acres ?—*A.* They may get a little more.

*Q.* The bulk of the sugarcane has to come from the company's lands ?—*A.* Yes. If they get it from other people they may not get it at the exact time they want.

*Q.* There are many existing canals to which the same assistance can be applied ?—*A.* It will be more difficult to disturb the existing conditions than in the case of new canals which are in the making to put a company on a factory basis.

*Q.* You do not think that a factory can be started on the existing canals ?—*A.* It can be started; but the land value has gone up gigantically, and the cost of acquisition will be very great. There are only two old canals of any size.

*Q.* Regarding oil, you say, " It is assumed that it would be more profitable to India to export the produce in the form of oil and of oil cake." What do you mean by 'assumed'?—*A.* I know nothing about it. I find people constantly asking me why they do not crush their own oil in this country when they produce so much oilseeds and no one seems to know whether it would be more profitable to export the produce in the form of oil and oil cake, or in the form of oilseeds.

*Q.* A considerable quantity of oil cake was exported before the war from India, but since the war it has been accumulating and there is no sale for it ?—*A.* That may be so in some cases.

*Q.* You are trying to popularize oil cake as far as possible. Do you take any special steps for it ?—*A.* The co-operative branch organizes co-operative societies for selling cake co-operatively.

*Q.* You get figures showing the increase of sales locally ?—*A.* The figures of each society will show that.

*Q.* They are not collected ?—*A.* You will find them in the Co-operative annual report.

*Q.* Has any appreciable progress been made in the popularizing of oil cake ?—*A.* For manure, yes.

*Q.* I was thinking for cattle.—*A.* This opens the whole question of feeding cattle, whether people care to feed their cattle at all.

*Q.* On the mill-made oil cake ?—*A.* They prefer ghanny-made oil cake, and they are justified.

*Q.* Have you any idea of the effect the multiplication of oil mills would have upon the *teli* ?- *A.* I think he would die out.

*Sir D. J. Tata.*—*Q.* I do not quite fully understand what it is that you want to do. You would take up the whole area first of all, then cut it up and reserve one-fourth of it for the factory and cut up the remaining three-fourths into little plots and give a portion equal to three-fourths of his holdings to each man. Don't you think that it is possible that a man who has his plot of land near his own village might get a plot somewhere at the other end, and he might not like the exchange ?—*A.* As far as possible we would give him land as conveniently situated as possible.

*Q.* It is very difficult to do so as a working scheme.- *A.* I admit there are difficulties, but it appears to me of extreme importance to the future progress of the Deccan that we should make some attempt of this kind.

*Q.* Would the cultivator be willing to sacrifice one-fourth of his land if he could get water ?—*A.* If the matter was put to him, if it was shown that he would get advantage out of it, but whether he is willing I cannot say.

*Q.* He would have no choice ? - *A.* Not if legislation is passed.

*Q.* You say, "The losses that occur in the manufacture of *gur* by primitive methods are large." Does your department carry on any experiments or work in this connection to show the people how it could be avoided ?—*A.* Yes.

*Q.* Has it any effect ? - *A.* We have had very marked results in improving the quality of *gur* and showing how to avoid some losses. But crushing in the way they do with a small single set of rollers, the loss in extraction is very great.

*Q.* You say that there is a small export of dried meat from Bombay. What is that ?—*A.* I think it is mainly dried buffalo meat produced in Bombay.

*Q.* Sun-dried ?—*A.* Yes.

*Q.* You said something about sub-soil water. Is there any attempt made to get any artesian water in this Presidency ?—*A.* Yes.

*Q.* Is there any artesian water anywhere in this Presidency ?- *A.* There is a good well in Viramgam where water reaches about 20 feet above the ground. There is a small one in Kharagoda. We have many sub-artesian wells. It will come to 20 or 30 feet below the surface and then you have to pump it.

*Q.* Some sort of geological survey should be made with a view to obtain artesian wells ?- *A.* By means of boring we are collecting geological data in Gujarat.

*Q.* Is the water finder of any use for that purpose ?- *A.* The water finder is for crevice water in the Deccan tract.

*Q.* Are you aware of the unsuccessful experiments made many years ago in Navsari by my father ? He was trying to find artesian water and we had a plant out and we were told by the Geological Department that somewhere between that place and Broach it might be possible to strike artesian water and we had two or three boring plants brought out. We started a well in our garden in Navsari without striking artesian water. Since then we have been lending the boring plant to cultivators and others to deepen their wells and get at sweet water below brackish water, but I have never known of any successful artesian water.—*A.* Not rising to the surface. It will rise to the bottom of the well in many cases in that tract.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* Do you know what is the average yield of stripped cane in the Deccan ?—*A.* A good average outturn is 36 tons to the acre.

*Q.* Java has 40.—*A.* Many estates get over 50.

*Q.* So, do you think that if these 60,000 acres of land were given to private companies they would successfully compete with imported sugar ?—*A.* I think so. In the Deccan some cultivators get an enormous outturn of cane. I have seen a crop in the Deccan which was estimated at 75 tons to the acre, and this is as large as you can get anywhere.

## APPENDIX A.

*Comparative statement showing prices of sugar and gur prevailing at Poona on 1st January from 1905 onwards. (On the basis of retail prices.)*

| Year. | Sugar per ton. | *Gur* per ton. |
|---|---|---|
| | Rs. | Rs. |
| 1905 | 211 | 195 |
| 1906 | 167 | 185 |
| 1907 | 188 | 208 |
| 1908 | 200 | 199 |
| 1909 | 211 | 212 |
| 1910 | 241 | 213 |
| 1911 | 238 | 229 |
| 1912 | 305 | 211 |
| 1913 | 269 | 191 |
| 1914 | 286 | 213 |
| 1915 | 353 | 221 |
| 1916 | 399 | 248 |
| 1917 | 458 | 254 |
| 1918 | 417 | 229 |

## APPENDIX B.

*Note on the Work of the Agricultural Engineer to Government, Bombay Presidency, between the years 1909-1917.*

The enclosed statement shows the amount of machinery purchased, cost, H. P., etc., and also gives particulars of repairs during the period under review.

A study of these figures will show what progress has been made since the work was undertaken by a professional man.

The war, however, has been the means of retarding progress to a very great extent; in fact, were it not for the workshop at Poona most of the work would probably come to a standstill. Another reason why the progress has not been so rapid as it might have been is the fact that much of the time of this department has been taken up in attending to not a few idle enquiries; men bent on getting something for nothing, who after putting the office to a lot of trouble about all sorts of power units usually finish up by asking for a hand pump on the hire system. Nevertheless, there is immense scope in this Presidency for the engineering section of the Agricultural Department. But perhaps the most important part we can play is that of modifying standard makes of farm mechanism to suit the requirements of the Indian ryot. When one considers the laborious process of treading out the corn under the bullocks' feet, the thousands of acres invested with hariali grass, and the appalling inefficient cane crushers it will be obvious that there is ample scope for one man in this direction alone for years to come. Then there is power pumping and boring which in themselves afford unlimited scope for research and demonstration work.

Power pumping, boring and mechanical cultivation have kept this department fully occupied so far, and when it is considered that during the years under review prime movers representing 1,078 25-H. P. have been purchased, 578 bores sunk, and 6,660 acres ploughed, some idea of the work involved in surveying, estimating, erecting and demonstrating will be gathered, and whilst these are sections of the work which will continue to demand our attention, there are other sections of work with power units which are beginning to claim attention also, viz., motor ploughing, shredding and baling, cane-crushing, threshing, ginning, milling, fibre extracting, and possibly mechanical transport. The introduction of power mechanism, however, has led to another branch of activity, *i. e.*, training of men in the use of power units, and the oil engine driving class held at the Agricultural Engineer's Workshop at Poona is likely to be of immense importance to the ryot of the future, and finally the establishment of an experimental well upon which all the principal power units side by side with country devices are demonstrated will I am sure do very much in overcoming the prejudice which at present prevents the ryot adopting the more modern methods of agriculture.

Enclosed is a description* of the various devices demonstrated on the well in question during the recent meeting of the Board of Agriculture.

W. M. SCHUTTE, A.M.I.Mech.E.,

Agricultural Engineer to Government, B. P., Poona.

---

* Not printed.

*Statement showing the Progress of the Agricultural Engineer's Department from the year 1909-10 to the end of 1917.*

| Years. | No. of Engines. | No. of Power Pumps. | No. of Gins. | No. of Cane Crushers. | No. of Chaff Cutters. | No. of Baling and Bruising Machines. | No. of Wind Mills. | No. of Grinding Machines. | No. of Saw Mills. | No. of Oil Mills. | No. of Hand Power Boring Machines. | No. of Engine Power Boring Machines. | No. of Steam Ploughs. | No. of Motor Ploughs. | No. of Hand Pumps and Hand or Bullock Power Water Lifts. | Agricultural Engineer's Workshop Machines. | Total B. H. P. of Plants fixed during the year. | Approximate cost of Machines fixed during the year. | No. of repairs carried out during the year. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Before 1909-10 .. .. .. | 6 | 5 | 2 | 2 | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 68 | 22,455 | .. |
| 1909-10 .. .. .. | Inspection of old Plants and Design of a big Gas Power Pumping Installation. | | | | | | | | | | | | | | | | | | 6 |
| 1910-11 | 3 | 4 | . | .. | | | 1 | .. | | | 15 | .. | .. | .. | .. | .. | 30·5 | 20,301 | 8 |
| 1911-12 | 2 | 5 | | .. | | | . | .. | | .. | 1 | .. | .. | .. | .. | .. | 45·0 | 24,041 | 2 |
| 1912-13 | 4 | 3 | . | 1 | . | .. | . | .. | | .. | .. | 1 | . | .. | .. | .. | 42·0 | 14,819 | 2 |
| 1913-14 | 12 | 9 | 1 | .. | . | .. | . | .. | | .. | 12 | 1 | 1 | .. | 1 | .. | 266·5 | 90,792 | 2 |
| 1914-15 | 8 | 6 | 4 | 1 | 2 | 1 | | 3 | .. | 1 | .. | 1 | 1 | .. | 3 | .. | 240·0 | 72,912 | 13 |
| 1915-16 | 14 | 9 | 1 | .. | 2 | 1 | | 1 | . | .. | 4 | 2 | .. | 1 | 5 | .. | 134·0 | 57,687 | 16 |
| 1916-17 | 8 | 8 | .. | 1 | 1 | .. | | .. | .. | .. | 1 | 1 | .. | .. | 12 | .. | 89·75 | 29,198 | 12 |
| 1917-18 including Experimental Well and Agricultural Engineer's Workshop. | 19 | 13 | .. | 2 | .. | .. | .. | 1 | .. | . | .. | .. | .. | .. | 17 | 19 | 149·5 | 87,055 | 14 |
| Total of each fixed by this Department . | 76 | 62 | 8 | 7 | 6 | 2 | 1 | 5 | .. | 1 | 33 | 6 | 2 | 1 | 38 | 19 | 1,078·25 | 4,19,260 | 75 |
| Machines in the Presidency other than the above installed by the owners. | 135 | 10 | 38 | 5 | . | .. | .. | 22 | 2 | 1 | .. | .. | .. | .. | .. | .. | 2,505·5 | Not known. | .. |
| Grand Total.. | 211 | 72 | 46 | 12 | 6 | 2 | 1 | 27 | 2 | 2 | 33 | 6 | 2 | 1 | 38 | 19 | 3,583·75 | 4,19,260 | 75 |

Leaflet showing the particulars of Experimental Well is attached herewith.

W. M. SCHUTTE,  
Agricultural Engineer, Bombay, Poona.

## WITNESS No. 335.

### MR. A. R. BURNETT-HURST, F.S.S., *Wadia Professor of Statistics and Indian Economics, Sydenham College of Commerce and Economics, Bombay.*

### WRITTEN EVIDENCE.

### *Criticism of the present System of Collecting and Distributing Statistics with Suggestions for its Improvement.*

I shall confine my criticism chiefly to three main sections of statistics (Production, Trade and Wages), especially with a view to emphasizing the need for improving these in particular.

*Statistics of Production.*—The value of accurate and comprehensive statistics of production is generally recognized, for we are enabled by them to measure the activities of a community and to trace changes which are taking place from time to time. It can hardly be said that the existing statistics published by the Department of Statistics and other bodies enable us to measure the productive power of the community. My purpose is therefore to show to what extent these statistics are defective and to suggest methods of remedying the defects. The data relating to production can be classified as those concerned with (1) Industry, (2) Agriculture, and (3) Minerals.

Of these, the most complete are the last mentioned. Annual returns, which are approximately trustworthy, are made for most of the important minerals (Appendix No. I), but there is a class of minerals for which full information cannot be procured regularly (Appendix No. II). Nevertheless, every effort is being made to obtain more accurate information, and the number of minerals in this class will gradually diminish.

On the other hand, the statistics of industrial production are far from satisfactory. The information at present obtainable relates only to the undermentioned industries: in some cases the quantity alone of goods produced is given:—

| *Industry.* | |
|---|---|
| Cotton—Pressing | .. Quantity pressed (bales of 400 lbs.). |
| Spinning | .. Quantity of yarn (lbs.). |
| Weaving | .. Quantity of woven goods (lbs. and their equivalent in yards). |
| Woollen | .. Quantity (lbs.) and value (Rs.). |
| Paper | .. Quantity (lbs.) and value (Rs.). |
| Brewing | .. Quantity (gallons). |

It will be seen that no information is given of the quantity or value of goods produced in jute mills, presses and screws; leather works and tanneries; iron and steel works; sugar mills; glass works; potteries; brick and tile factories; flour and rice mills; machinery and engineering works; printing presses, etc., to mention but a few industrial establishments. I should therefore urge the necessity of empowering the Director of Statistics to collect compulsorily annual returns of production in the above and similar establishments. Such returns would be treated as confidential and statistics compiled from them should not be published in such a form as to disclose the figures of any individual firm, nor reveal any trade secrets.

With regard to the statistics of agricultural production, these are deficient in two ways. In the first place, the estimates of the acreage and yield of crops in certain provinces (*e.g.*, Bengal) are officially stated to be more or less conjectural. Measures are being taken to bring about an improvement; but, in my opinion, no great improvement can be expected until Government is prepared to incur considerable expenditure for the purpose of appointing paid estimators where a suitable reporting agency is not at present available. Here I might say that with regard to almost all returns from agricultural districts, whether they be of wages, prices, births, deaths, etc., they are as a rule made by persons who have little or no interest in them and who regard the making of them as a burden added to their other and more important duties. It would almost be better to appoint an officer for a group of villages whose sole business would be to make statistical returns relating to agricultural produce, wages, prices, births and deaths, and who would be aware that his position and pay depended upon his carrying out the work thoroughly and on his making the returns as accurate as possible. The work of such men could further be checked by travelling inspectors.

Another respect in which the statistics of agricultural produce are inadequate is that they relate only to a few of the most important crops, while returns of yield for gram, potatoes, peas and beans, barley, oats, maize, castor seed and coffee are either not made or are defective. Again the returns of live-stock are officially admitted to be incomplete. The statistics are mainly based on cattle censuses which are not taken simultaneously in the different provinces, nor are they taken every year in all the provinces.

B. Burnett-

If the above defects were remedied upon the lines suggested, it would hardly be necessary t present to go further for the purpose of annual returns. I am of opinion, however, that from ime to time, say decennially, a more comprehensive survey of the production of the community hould be made. A periodical census of production should be undertaken similar to those vhich have been carried out in the United Kingdom, the United States of America, the Self-overning Colonies and European countries. In Appendix No. III, I have indicated in out-ine the scope of such a scheme and the nature of the information which would be required. I ave drawn up this outline as a mere suggestion. Details could of course be modified, but I do eel that some such scheme is needed in this country at as early a date as possible. It would e preferable to carry it out in the same years as the census of population.

*Statistics of Trade.*—An analysis of the various reports on sea-borne and inland trade dis-loses a certain inconsistency in the adoption of statistical units. A list is given below of a few ublications of trade statistics together with a statement of the weights, measures and values which the data are presented.

| | Weights and Measures. | Values. |
|---|---|---|
| eview of the Trade of India* .. | Oz., lbs.; cwts.; tons; gallons; yards; etc. | Rs. |
| tatistical Abstract (Vol. I—Commercial Statistics) .. | | |
| *onthly* Statement of Sea-borne Trade of British India. | | |
| nnual Statement of Sea-borne Trade of the Bombay Presidency. | | |
| nnual Statement of Coasting Trade of British India. | | |
| *nnual* Statement of Sea-borne Trade of British India. | Do. .. | £ |
| nnual Report on River and Rail-borne Trade of India. | Cwts. (except in a few cases). | None. |
| nnual Report on River and Rail-borne Trade of the Bombay Presidency. | Mds. .. | Totals in Rs. |

It will be seen that in the matter of values the annual statement of trade differs from the emaining publications, the change in the units of value of the former having been made in 911-12. The same quantities and values should as far as possible be employed in both the ea-borne and inland trade reports. I am aware that the present method of collecting certain f the returns and other considerations account for the inconsistency. Nevertheless, uni-ormity should and can be preserved between the sea-borne and inland trade figures. These two roups of statistics should be co-ordinated so as to enable one to trace the distribution of imports hroughout the country. At present this is not possible in the case of a large number of com-odities which, though they appear in the sea-borne trade returns, find no place in the inland rade returns, *e.g.*, boots and shoes, earthenware and porcelain, glass and glassware, cutlery. Ioreover, the seventeen blocks or sections into which the country is divided for registration urposes should be subdivided and more detailed information given.

*Statistics of Wages.*—The annual statistics at present given relate for the most part to three lasses of skilled and unskilled labour—(*a*) able-bodied agricultural labourers, (*b*) syces or horse eepers, (*c*) common masons, carpenters or blacksmiths. These classes cannot be said to be ypical, nor is the syce, for instance, typical even of domestic labour. Further, there appears o be no justification for treating the three distinct occupations of mason, carpenter and black-mith under one and the same head. One would expect to find in any statement about wages f skilled and unskilled labour in India, not only particulars relating to agricultural labourers nd workers in the building trade (stated separately), but also details about the wages of each lass and grade of labour in the textile factories, printing works, in mining, on railways, docks, tc.† It is true of course that statistics are published from returns made by a few sympathetic mployers and agents of mills, factories and collieries, but these not only result in a biased election but also do not enable one to obtain a comprehensive view of conditions in these rades as a whole.

Apart from the limitation in the scope of these statistics, they are also presented in a form hich serves little purpose.

I should suggest that the Director of Statistics be given compulsory powers‡ for collecting nnual returns of wages (both standard rates and average wages) of all the chief classes and grades f labour in large industrial establishments and enterprises. Moreover, periodical, say quin-uennial, wage censuses of a more detailed, uniform and comprehensive nature than characterizes those at present carried out should be instituted (Appendix No. IV). These censuses should be of such a character as to supply us with information showing the relation of the monthly wages and earnings of individuals to the average, also the earnings of all persons whether working full time, overtime or short time. There should in addition be an accompanying statement as to hours of labour, as both factors—wages and hours—must be known in order to determine the earnings on full time per week, month or year.

---

* The value of trade with principal countries, also in certain commodities, is given in £ sterling.

† In the Prices Inquiry Report, wages in several of these industries are given for the period 1890—1912. Ve are not told how far the returns are representative of the respective industries. The report merely tates:—"The wages of special industries published in the *Prices and Wages* have been utilized along with the tatistics received from the proprietors, managers or managing agents of some mills and factories."

‡ The words of Dr. Bowley, with reference to the improvement of official statistics in the United Kingdom, might well be applied to India:—"The compulsory powers of collecting statistics are too few and too seldom applied. The public is getting educated to understand in part the use of these inquiries, and it is quite possible to increase the demands made on them. The bulk of the burden of furnishing information now tends to fall on a few ympathetic employers or others and we tend to get a biased selection."

I should like to add a few words with regard to the statistical publications of Government in general.

(1) More explicit definition of terms employed might be given.

(2) The statistical abstracts published by Government are of a very inconvenient size. It would be preferable to issue volumes of the same size as the abstracts published in the United Kingdom or the United States.

(3) We receive our trade statistics with commendable promptitude, but this cannot be said of several of the other statistical publications. In spite of difficulties that no doubt exist, some could surely be issued earlier. If the delay arises through insufficient staffing, then I would urge the need of better equipment in this respect. This brings me to the matter of the recruitment of the staffs of the Department of Statistics and other statistical departments of Government institutions.

I understand that the staff for the Department of Statistics is recruited as is done in other Government departments. I should urge that appointments in the office should only be open to those who show the possession or promise of statistical ability; while a knowledge of descriptive economics and mathematics should be essential. For the higher positions in this and other statistical departments, the appointments should be reserved for persons who have received special statistical training. A false notion prevails that any one who is good at arithmetic can compile statistics, hence we find that in a great many of the public departments compiling and publishing statistics in connection with their work of administration, persons are in charge who have never acquired the technique of statistics but who are appointed primarily as administrators and not as statisticians.

The Department of Statistics of the Sydenham College of Commerce and Economics is, subject to the sanction of Government, prepared to establish a diploma course in statistics with both day and evening classes, if necessary, for those who wish to specialize in the subject, provided the students so trained can be placed in suitable appointments.

Above I have stated broadly the main lines upon which the existing statistics are incomplete and have indicated how they might be improved. Any criticism in great detail of the various statistical publications—the mode of presenting the data, the need for greater condensation of some of the tables and for the elaboration of others, etc.,—would obviously be out of place here. It would also be impossible to discuss those statistics which are collected by various departments in the course of their administrative duties. Accordingly, I should suggest that a small temporary committee be formed consisting of the Director of Statistics and such persons as possess the requisite qualifications and time to study the statistics and statistical publications of each department with a view to improving the method of collecting and presenting the facts and remedying any existing defects. It appears to me that some such critical examination is required. To give an idea of the kind of detailed analysis which needs to be undertaken, I might furnish one example. In the 1917 issue of *Prices and Wages* on page 166 it is stated that the *average* monthly wage of the group—common mason, carpenter or blacksmith—in the Bombay district of the Bombay Presidency in 1912 *ranges* from Rs. 27·79 to Rs. 37·5. That wide *range* in values is stated as an *average*. Moreover, two places of decimals is a degree of accuracy which, quite apart from the fact that it signifies fractions of annas and pies, is surely not justified when one has such a wide range stated as an average, and when the data relate to such a mixed class. Similar instances occur again and again throughout the report. Further, an average has been given for the Bombay Presidency which is an "unweighted average," *i.e.*, which is calculated irrespective of the number of persons to which the average wage of each district applies. The employment of "weighted averages" would be preferable, the weights used also should be stated.

When this preliminary work has been accomplished I should suggest the formation of a small permanent board to carry on the supervision of statistics and to consider from time to time improvements which might be introduced. Further, in order to bring about greater uniformity and co-ordination in the statistics that are published by the various departments of the Imperial and Provincial Governments and the Native States, periodical conferences should be held, to which representatives from the statistical departments of Government institutions, the railways, chambers of commerce, etc., should be invited.

What I have said must not be regarded as a condemnation of the work of the Imperial Department of Statistics. On the contrary, when one looks back on the official statistics, say twenty or thirty years back, and compares them both as regards quantity and quality with those published to-day, one is hopeful of great things for the future. I understand that returns now made are verified and that the figures to be published are carefully checked, which I am told was not the case formerly. Many improvements in the form of presenting the facts and the supply of fresh data have been introduced, particularly in the review of the trade of India, but much, as I have shown, still remains to be done. With the spread of education, the statistical schedules will be better understood by all classes and the results obtained will be more reliable than at present.

## APPENDIX No. I.

*Minerals for which approximately trustworthy Annual Returns of Production are available.**

Chromite, coal diamonds, gold, graphite, iron ore, jadeite, lead ore, magnesite, manganese ore, mica, monazite, petroleum, platinum, ruby, sapphire and spinel, salt, saltpetre, silver, tin ore, tungsten ore, zinc ore.

## APPENDIX No. II.

*Minerals for which regularly recurring and full Statistics of Production are not at present procurable.**

Agate, alum, amber, antimony, aquamarine, bauxite, building materials, clay, copper corundum, garnet, gypsum, ochre, steatite.

## APPENDIX No. III.

*Outline Scheme for a Census of Production.*

(1) That a decennial census of production be instituted, the first to be taken in 1921 or some subsequent date.

(2) That the inquiry relate to the following main branches of production whether carried on by the State, municipalities, private companies or individuals :—

Agriculture.
Mining, etc.
Transport.
Wholesale manufactures.
Retail manufactures (as far as possible).
Building.
State and municipal enterprises.

(3) That the following particulars relating to each trade and industry be obtained :—

(*a*) Value of materials purchased.
(*b*) Quantity of materials purchased.
(*c*) Value of materials produced.
(*d*) Quantity of materials produced.
(*e*) Number of persons employed.
(*f*) Number of days worked.
(*g*) Horse-power and kind of engine
(*h*) Wages and salaries.
(*i*) Miscellaneous expenses.
(*j*) Capital.

(4) That compulsory powers be given to the body entrusted with the census to obtain the necessary information from the occupier or agent of every factory ; the owner, agent or manager of every mine and quarry and every other person who may be called upon to do so.

(5) That powers be given to the above body to appoint one or more committees for advisory purposes.

## APPENDIX No. IV.

In a note written by Mr. W. H. Moreland, when he was Director of Agriculture in the United Provinces, attention was drawn to the grave danger of entirely erroneous conclusions which economists and politicians might deduce as to the economic condition of India from the misleading wage statistics. Accordingly the Government of India recommended that a periodical census of wages should be taken in all provinces. The object of such a census was to ascertain the standard rates of wages in each district or homogeneous tract and to provide material for the observation of permanent changes in these standard wages, neglecting short period fluctuations. Censuses were carried out by all provinces but at different times and of different scope as is shown in the accompanying table. The inquiries in urban areas were confined for the most part to time-workers engaged in certain specified occupations. The wage censuses, which I propose, would include not only time-workers but also piece-workers, would relate to most of the large industries in the country and would give information not only about standard rates of wages but also earnings.

---

* Records of the Geological Survey of India, Vol. XLVII, Part 3, 1916, p.p. 144—195.

WAGE SURVEYS OR CENSUSES.

(Published up to January 1917.)*

| Province. | Nature and date of Census. | Scope. | |
|---|---|---|---|
| | | Urban Tracts. | Rural Tracts. |
| **Ajmer and Merwara** | .. 1st Wage Census, March 1911 | Workers in iron and hardware : carpenters : cotton weavers (hand industry) : masons and builders : railway service—firemen and fitters : indoor service : general labour. | Blacksmiths ; carpenters : ploughmen ; syces ; unskilled labourers. |
| **Coorg** | . Wage Census, August 1913 | .... | Blacksmiths ; carpenters ; ploughmen ; syces ; unskilled labourers. |
| **Bengal** (including Bihar and Orissa). | 1st Wage Census, August 1908 | .. Blacksmiths : firemen : fitters : carpenters : masons : unskilled labourers. | Blacksmiths ; carpenters ; cartmen ; gharami (thatchers) ; ploughmen ; railway station coolies : unskilled labourers. |
| | 2nd Wage Census, April 1911 | Do. do. .. | Do. do. |
| **Bombay** (including Sind) | . 1st Regular Wage Census, August 1911 | . Blacksmiths : firemen : fitters : carpenters : masons ; unskilled labourers. *Also* workers in iron and hardware ; workers in brass, copper and bell-metal : cotton weavers (hand industry). | Agricultural labourers ; blacksmiths ; carpenters ; farm servants ; domestic servants ; railway station coolies. |
| **Burma** | .. Half yearly return* of wages paid in rural areas and urban tracts, June 1911. | Workers in iron and hardware ; workers in brass, copper and bell-metal ; carpenters ; cotton weavers (hand industry) ; masons and builders ; syces ; general labour. | Agricultural labourers ; blacksmiths ; carpenters. |

| | | | |
|---|---|---|---|
| Central Provinces and Berar .. | Annual statement for the year ending—<br>30th June 1910.<br>30th June 1911.<br>30th June 1912.<br>30th June 1913.<br>30th June 1914. | Workers in iron and hardware; workers in brass, copper and bell-metal; carpenters: cotton weavers (hand industry): masons and builders: general labour—(a) common labourer; (b) unskilled mill-hand. | *Classes of labour.*<br>(1) Agricultural.<br>(2) Sowing, etc.<br>(3) Harvesting.<br>(4) Earthwork.<br>(5) Carpenters.<br>(6) Masons. |
| Eastern Bengal and Assam .. | 1st Wage Census. August 1911 | Blacksmiths and other workers in iron: workers in brass, copper and bell-metal: carpenters, etc.; cotton weavers, etc.: masons, etc.: general labour. | Earthworkers; harvesters; weeders; boatmen; carters; thatchers; blacksmiths; carpenters; railway station coolies. |
| Madras .. | 1st Wage Census, August 1908 | Workers in iron and hardware: carpenters; masons and builders; general labour. | Blacksmiths; carpenters; farm servants; syces; railway station coolies; unskilled labourers. |
| | 2nd Wage Census August 1911 | Do. do. (Excluding general labour.) *Also* workers in brass, copper and bell-metal; cotton weavers (hand industry): unskilled labourers. | Do. do. (Excluding syces.) |
| North-West Frontier .. | 1st Wage Census. December 1912 | Workers in iron and hardware: workers in brass, copper and bell-metal: carpenters: cotton weavers (hand industry): masons and builders: general labour (unskilled). | Blacksmiths; carpenters; masons; ploughmen: railway station coolies: unskilled labourers. |
| Punjab .. | 1st Wage Census.† December 1912* | Workers in iron and hardware: workers in brass, copper and bell-metal: carpenters: cotton weavers (hand industry): masons and builders: general labour (unskilled). | Blacksmiths: carpenters; masons; ploughmen; railway station coolies; unskilled labourers. |
| United Provinces .. | 1st Wage Census. 1906<br>2nd Wage Census. August 1911. | Workers in iron and hardware: workers in brass, copper and bell-metal: carpenters: masons and builders; general labour (unskilled). | Blacksmiths; carpenters; ploughmen; railway station coolies: unskilled labourers. |

---

* The first return to be issued. Subsequent returns have not been made pending orders of the local Government.

† A preliminary survey was carried out in December 1912.

*(Mr. Burnett-Hurst did not give oral evidence.)*

## WITNESS No. 336.

### MR. MOTILAL MANEKCHAND, *Merchant and Banker, Amalner, East Khandesh.*

### WRITTEN EVIDENCE.

### *Financial Aid to Industrial Enterprises.*

**Raising of capital.**

I myself being the promoter and *ex officio* Director of the Pratap Spinning, Weaving and Manufacturing Company, Limited, situated at Amalner in the East Khandesh District, had once to try for raising of capital for the said mills, and my experience as regards the difficulties in raising funds was that the public in general residing in Khandesh and the neighbouring districts, though possessing of funds, are afraid of entrusting them ; being illiterate, the general mode of their dealing never goes beyond agriculture and money lending to agriculturists. They are not yet accustomed to invest their funds for promotion of industries. But if they are fully convinced that the undertaking is undoubtedly a profitable one and that it would be worked with all honesty, they would invest.

I cannot suggest any new sources, but I rely on the general public, which, if sincerely explained the nature of the industry, the mode of its working, the probable percentage of profits it would reap, and, above all, that their investments shall be safe in the hands of the party that shall be the managing directors under an honest way of working, shall bring forth any amount of funds for starting new industries. The best thing that could be done to attain the said objects would be for Government to establish demonstration factories and make their lucrative results, if they be so, known to the public.

Provided Government gives but a frank-hearted assistance to any enterprise in India, it is sure to flourish like spontaneously grown weeds in the forest in rainy season.

**Starting too many industries.**

The kinds of industrial enterprise where more concerns have been started than can be maintained in full-time employment are ginning and press factories. The said assertion can be best supported by the following particulars *re* Amalner market. Average quantity of lint (kuppas ginned) in Amalner every season varies between 45,000 to 50,000 pullas of, say, 250 lbs. A cotton season commences from November and lasts till the end of March, *i.e.*, 5 months about. Allowing holidays, accidents and a few rainy days, to which this working period is generally subject to, actual working days in a season vary from 110 to 120.

A gin of ordinary type in 11 hours' working gins an average of 375 lbs. lint per day, *i.e.*, one pulla and a half. If this single gin were to work for, say, 110 days, the actual working days, the outturn would be 165 pullas. At this rate of calculation about 300 gins are quite sufficient to answer the requirements of Amalner market, whereas Amalner possesses 8 gin factories in all containing 544 gins. This means that there are about 250 gins in excess of the actual wants.

A gin erected at any place, with all the lands, structures and accessories and moving power, costs Rs. 1,200, and therefore it may be said that an investment of *3 lakhs of rupees* on 250 surplus gins is an *idle capital.*

Similarly, a press, allowing for the practice of late working, inefficient workers, and mixing process, can press 150 bales a day in 11 hours' working, *i.e.*, a press can make 16,000 bales during a season. Amalner turns out 30,000 bales average, and 2 cotton presses are enough to suffice the requirements of the place.

The place has got 6 press factories, and thus an investment of Rs. 3 lakhs on surplus 4 presses is a locked up capital.

What I have said in respect of Amalner holds good for both the said industries of ginning and pressing throughout Khandesh, Berars, C. P. and C. I., *i.e.*, in each circle double the number of gins and cotton presses have been erected, whereas the actual want is for half the numbers.

Lesser percentage of profits is the natural result attends, and the superfluous capital that could have been utilized for other varieties of concerns is uselessly lying idle.

**Financial aid from Government.**

Each and any of the methods of giving Government aid are all welcome.

No definite opinion in favour of or against any method can be presently expressed. Much shall depend on the circumstances and surroundings accompanying the importance of the concern.

Whatever be the method of Government assistance, the features of Government supervision must be so shaped as not to interfere with the direct working or working principles of the concern, but to detect and restrict frauds, if any be tried by the working body.

(*Mr. Motilal Manekchand did not give oral evidence.*)

## WITNESS No. 337.

### MR. H. P. GIBBS, *General Manager, Tata Hydro-electric Supply Company, Limited.*

### WRITTEN EVIDENCE.

In forwarding my evidence as requested in your No. 225, dated Calcutta, the 11th December 1916, I am not strictly following your list of queries but am dealing in a general way with those numbered from 44 to 55, and only as applied to my own line of work which principally comprises Mechanical and Electrical Engineering.

Labour.

The lesser educated make the best labourers; education induces men to aspire to higher walks of life. Those of little or no education are content to remain labourers. The discontented man is of little value. The educated man found in their ranks is usually either one who on account of some form of vice or defect cannot hold a position elsewhere, or a young man who is making it the training ground for better things to come.

The Indian workman is as a rule a real good imitator and I think, as a usual thing, when he does not become a good workman we may be fairly sure that those whom he has had to imitate have been primarily at fault, and I feel for the man who persistently says they can never be made to do anything accurately, as he gives testimony thereby to his own inefficiency and wrong methods. The man who leaves them to their own way saying they have always done it so and always will do so, does much harm.

Engineerin

A prize was once offered for the best reply to the question "What is Engineering?" The answer which won was "A practical application of common sense." There are two distinct classes of engineer. One is the man who designs and creates, while the other is the man who applies and operates. We are now principally concerned with the latter, which leads me to state that a man of comparatively little education may become a good engineer, but a man of little common sense can never do so.

Education.

We must assume that our student is naturally possessed of common sense and ability to apply. He should have a thorough grounding in the fundamental and practical theory of his work and should be taught to think and reason intelligently. Technical schools should not be under the control of the general educational department. Each one should stand alone having its own faculty. Its principal professors should be men of recognized position and ability, brought out on special agreement and they should never be kept sufficiently long to become at all antiquated in their ideas and methods. They should fully understand that such are the terms of their engagement and they should be paid sufficiently well to compensate them for serving under such conditions.

For a good idea of what I believe to be best in India in the way of schooling for short-time employés, I refer you to Sir Clement Simpson of Madras, who has carefully developed this system in connection with the Buckingham and Carnatic Mills.

Employm experts.

No man should be imported into India unless he is a recognized expert in his particular line. He too should be engaged on short-time contract and made to understand he is being engaged and paid to teach our local men just as much as to introduce and carry on his work. The young man from abroad who is educated but inexperienced should not be brought to India and allowed to get his practice here.

Training o men.

Each year a number of Indians are sent abroad either to enter schools or to enter works. Government scholarships are given. I have served on a Committee for the awarding of such scholarships. A young man applies for a scholarship in Electrical Engineering and on finding all such awarded, asks for one in Chemistry, failing again in his objective, he sometimes successively asks for one in Mechanical Engineering, Metallurgy or Agriculture, willing to take up anything which he thinks will give him an agreeable experience abroad and be followed by a lucrative position. Such tendency is indicative of lack of definite intention or ideal and is demoralizing. I feel that no man should be so sent abroad for Mechanical or Electrical Engineering training without first having been engaged at some good works at least two years and having satisfactorily proved his adaptability for the particular kind of work to be undertaken. On his return to India he should expect to receive but moderate pay and content himself with working for a few more years, fitting himself for administrative posts, but should be able to look forward with fullest confidence to recognition and reward of merit and ability as and when shown.

It must be borne in mind that even in countries where they are well advanced in these lines, only a small percentage of those specially educated and trained rise to important position and our young men should expect and be willing to enter into a field of fair competition with others, fully realising that this must necessarily be so. I served seven and a half years during which time I was trained as an expert, installed on my own responsibility the electrical equipment of seven important power stations, making additions to many others, equipped several isolated plant installations, made investigations and reports on electric railways, and was sent out to deal with every form of electrical plant trouble as a specialist before receiving as much as three hundred rupees per month.

The Professor of Electrical Engineering at one of the leading American Universities made a practice of finally trying most forcibly to impress upon the minds of his graduates that if at the age of forty they should *really* find themselves *Engineers* they might feel they had made a success.

What then is required and how are we to make Engineers and successful ones in India? To me the question seems a simple one and the obvious reply is chiefly *by example.* To my mind there is a decided lack of good example in India.

We may quote "the school of hard knocks" but it is useless to tell our young men that they must take their coat off and work as we used to do unless we also take ours off and by example fairly demonstrate how it should be done, and we must continue to work with them, day after day so long as the work goes on or until one or more shall become master of the work and able to handle it efficiently.

Our local men are seriously affected and kept low in percentage of efficiency and any number of our imported men deteriorate decidedly through having too much service and assistance both in their homes and on their work. You find a man doing a certain piece of work and see a cooly holding his spanner, another his screw-driver, etc. A heavy piece of plant weighing a few tons arrives in port and one hundred to two hundred men are employed to move it instead of seven to nine. In an office you usually find many clerks with little system instead of proper system and a moderate number of clerks. We will not put this right until we have in charge only men who are experts and we must insist that they shall work here as they have had to do elsewhere.

Recently I was one of nine people standing before the window of a railway booking office. Seven minutes passed away in serving one man during which time I saw two references made to guide-books, three tickets written out with pen and three entries made on various sheets and books.

Good ground work is at present more essential than higher education, our men must be taught not only to work but to work right, using the better and more efficient methods.

### *Summary.*

Carefully select the men you wish to specially train.

Carefully select their trainers.

Do not train abroad till the candidate is proven at home.

See that your experts do not fail in setting a good example.

Reward merit, promoting the deserving only.

Have no pensions.

Encourage fair and healthy competition.

## ORAL EVIDENCE, 27TH NOVEMBER 1917.

*President.*—*Q.* In referring to labour in the second paragraph of your note, you say that the discontented man is of little value: I take it that you mean the sort of man who is always discontented with his job, and not the ambitious man, the man with a right sort of discontent, who wants to qualify for something better?—*A.* Yes, that was my idea. I take it that the term "labour" is not applied to skilled artisans.

*Q.* In later paragraph you talk about the training of mechanical engineers. You say that no man should be sent abroad for mechanical or electrical engineering without first having been engaged at some good works: you probably have heard of students being sent abroad in this way with scholarships, sometimes by Government, sometimes with the help of a society, and sometimes by private generosity?—*A.* I have seen a good many of these students and I think that a large number of them do not turn to good account the opportunity for training they receive.

*Q.* Which you would put down to be due to want of practical experience before leaving India to get their training at home?—*A.* The trouble with many would seem to be that they had been selected without regard for their aptitude for the particular branch of training for which they accepted a scholarship.

*Q.* It occurred to me also that a good many of these troubles might be avoided first by selecting men who had done practical work here and shown their suitability for the particular kind of work or in the particular industry concerned: that seems to be generally accepted; but another suggestion has been put forward and that is this: that when a student has returned from abroad, his scholarship should not cease at once, but should go on for at least another year; the reason given for this suggestion is this; that when a student gets a two years or a three years' scholarship, in his second or third year, or whatever the year is, if he sees no certainty of getting a suitable job, he is likely to become a little unsettled, so that he does not do his work well; then when a boy of that kind comes back with, say, a technical degree or some technical diploma, he is hard up for a job at once, he has no time to look round in India, and he has two alternatives before him, one is to take the nearest job, which may be a subordinate post, and he rather feels that he is not likely to rise higher from that subordinate post, and he is therefore likely to be shy about taking subordinate posts and going through the mill. At the same time if he sticks out for a superior post on higher pay, he shows up badly at once for want of practical training because he has come back to what are to him rather new conditions; he has learnt a certain number of lessons and understood certain work, but he has got to translate his new knowledge into Indian conditions, he has not yet done that, so it is obviously necessary for the boy to have at least a year to accommodate himself to the Indian conditions, to apply his new knowledge to his new conditions, and to do it under circumstances that give him no cause for anxiety about his livelihood or any cause for anxiety about the position that he is likely to fill. So it is suggested that if you could extend his scholarship for one year after the student returns to India in order that he might go and work in a shop independently of any pay but still living on his scholarship, it would give him time to accommodate his new ideas to his new conditions, it will give him time to look round and judge what kind of position he could reasonably hope for, and it would also give his new employer the opportunity of studying his value as a practical man under conditions that are free from distractions. Now do you think if these scholarships were extended in that way, first choosing the boy before giving him his scholarship and extending it for one year after his return, do you think that these conditions would prevent the number of failures?—*A*. I think that would be very likely to give good results in one sense, but from my experience I think it would be better if during such latter part of their course they were paid like other workmen. For instance, we refuse to have any unpaid apprentices on our staff. We of course take apprentices, and as they receive pay they must work the same as any other men.

*Q*. But being in the position of a workman he will have a sort of feeling that he is not keeping his self-respect. He is really not an ordinary workman, and during his practical training if he can have a source of livelihood independent of his work in the workshop, that will preserve his self-respect to some extent?—*A*. Some of us believe, that there is no work which detracts from one's self-respect. I think if we admit the contrary the whole scheme is doomed to failure.

*Q*. You cannot now think of the time when you and I were brought up?—*A*. Yes.

*Q*. You are doing it in your own works?—*A*. Yes.

*Q*. And these boys who have been home come in and work as ordinary workmen?—*A*. Yes.

*Q*. And you are getting good results thereby?—*A*. Yes.

*Hon'ble Sir R. N. Mookerjee.*—*Q*. I take it by uneducated men you mean only those who will remain as unskilled labourers for their lives but even then you cannot keep them without education, which may be made compulsory.—*A*. I think we should discriminate between men who intend to become scientific and those who do not. I certainly do not say that labourers should not get primary education sufficient to enable them to read and write. What I mean is higher education.

*Q*. These labourers are of course not expected to have higher education?—*A*. That is so.

*Q*. What is the system in your own country?—*A*. Every one has to attend school up to the age of 14.

*Q*. Do the labourers there get discontented by being educated?—*A*. As I say, I do not classify as educated those people who obtain only such education as has been forced upon them.

*Q*. Your sense of education is higher education, higher than primary education?—*A*. Yes.

*Q*. For training these men and giving them practical experience you will have to satisfy yourself by their practical work for two years that they show aptitude, before they are actually selected for high technical training abroad?—*A*. I am sure that it would be better to put them for a year or two at some recognised works before they are sent abroad.

*Q*. You say that they should not be sent abroad for technical training without first having been engaged in some good works at least one or two years and having satisfactorily proved their adaptability for the particular kind of work to be undertaken by them; then they will come to the technical school and complete their technical training?—*A*. Yes, as they should demonstrate their fitness for the work to be undertaken.

*Q.* You say in the fourth paragraph of your note " one type of engineer is the man who designs and creates, while the other is the man who applies and operates. We are not particularly concerned with the latter." Is it your view that the man who designs and creates does not require education ?—*A.* As explained in my written evidence I am not dealing with the former ; he requires the highest technical and mathematical education of course ; it is the latter who does not require the higher form of technical education but he must have a good grounding.

*Q.* Then in your last summary you say ' carefully select the man who is to be specially trained ' ; that of course depends upon careful selection. How is that to be done ? Have you got workshops for giving the men training in this country ? Are you giving training in your own works ?—*A.* I am thinking more particularly of our own position all the way through. We have a certain number of imported men who train our local men. We must be sure that such imported men are highly trained and the best we can get before we entrust them with the bringing up of these younger aspirants.

*Q.* Indian workmen as a rule have a reputation not only as good workmen but also they do original work as artisans ?—*A.* But not in this particular line, " electrical work ".

*Q.* On page 2 you say " we may quote the school of hard knocks, but it is useless to tell our young men that they must take their coats off and work as we used to do unless we also take ours off " : do you find the English workmen here do the same thing, do they take their coats off ?—*A.* We insist that those we bring out for construction work shall do so and make it a condition of their contract, that their chief duty is to train our local men.

*Q.* Do you think they will continue their contract on that condition after they have been here for a year or so in the Indian atmosphere, and carry out work in the proper manner ?—*A.* They do. If they did not they would be replaced by others who would.

*Q.* But you will have to keep them up to the end of their contract whether you are satisfied with them or not, is it not ?—*A.* It is always a condition in every contract that if they do not carry out the duties required of them in a proper manner, they may be dispensed with after three months' notice.

*Q.* Do the Europeans who come out here always work like that ? When they see an Indian capable of doing the same work do they not say " chalao " ?—*A.* Our men do so.

*Q.* That is usually the general experience.—*A.* That is why I say, carefully select the trainers.

*Mr. A. Chatterton.*—*Q.* You have a number of men in your works trained at the Indian Institute of Science, Bangalore ?—*A.* We have had three only, one is at the power house, one at the receiving station and one is in my own office.

*Q.* Did you find them possessed of sufficient practical training when they joined you ?—*A.* In some instances for the work they have taken up : one of these went to the power house on work of a type in which he could not have had experience. The second man who is at the receiving station is in charge of our meter department which he is handling well. The third one is in my office in charge of technical statistics.

*Q.* So you have not at present had a sufficient number of men for you to be able to give a definite opinion as to whether the training is satisfactory ?—*A.* I know that they have very good grounding in higher theory, but most of them were without practical training when they came to us.

*Q.* What sort of training would you recommend for a well-educated Indian belonging to the middle class who aspires to one of the superior posts ?—*A.* I think they should first go into the works of one of the engineering companies, and practically demonstrate their aptitude for the work ; then if there is a school here of sufficient equipment for technical training in that particular line, let them take a course there, or go to a University or technical college abroad. They can get sufficient theoretical training in the electrical line at Bangalore.

*Q.* Before they get to that stage, would you have them go through a course of mechanical engineering ?—*A.* Not necessarily, they would do that as practical work during their workshop experience before taking the course, that is to say, in operating, constructing, maintaining and other classes of work ; in one or other of these classes of work he will have demonstrated his liability to do practical work. You see my idea is that he should show that he is naturally fitted for the work before going in for special theoretical training.

*Q.* But he would only demonstrate that he has aptitude for that class of work and nothing more ?—*A.* Well, you should give them liberty to demonstrate their aptitude in one of the works. Now for instance I have apprentices from the Victoria Institute of Technology, they have to undergo six months' practical apprenticeship in outside works. They put in six months' work with us, then go back to school ; some of these men also go to the Indian Institute of Science and often turn out very good men.

Q. What do they do in that six months' course ?—A. They work along with other members of our staff on maintenance and general repair of our electrical equipment.

Q. Do they receive pay ?—A. Yes. We do not have unpaid apprentices.

Q. Are there any firms of consulting engineers in India ?—A. I do not know of any in our line.

Q. Then you say in regard to the employment of experts, that they should be engaged on short-term contracts : you are speaking only of men brought out for construction work and not those who are engaged on maintenance ?—A. No. The same applies in both instances.

Q. You would not apply that to experts employed by Government, or would you ?—A. I am dealing with work as handled by us and not with matters connected with Government service.

Q. Do you find any particular difficulty in getting men on such contracts ?—A. No.

Q. Do you have to pay much above the current rates in getting out European or American recruits of the same class ?—A. When a man leaves his own country, he expects more remuneration than he would receive at home.

Q. I suppose in the case of these big electrical companies they have always a reserve of men of that type that they can send out for short time work, and these men when they go back after the expiry of their contracts are taken back again on their staff ?—A. Sometimes that is done, but speaking only of the company with which I was trained, they have always had good men whom they send to outside posts on short-time contracts, but never entirely lose connection with them. If the man leaves that post they will find him one if he has done well where he has been ; he is always looked upon more or less as an asset to them, and he looks upon them as a friend who will look after his interests.

Q. That is more or less an American method ?—A. It is not exclusively an American practice. The majority of our experts are British and are on such short-time agreements.

Q. But do you think that instead of going back at the end of their contract, they will do well to stay in this country where new works are continually opening up and expanding ?—A. A good many of them renew their agreement.

Q. Whereas if they return to England, will they have some trouble in finding a good position ?—A. They may have to wait a little time for it, but ordinarily they easily find employment.

Q. Then in your view there will be no difficulty in getting short-time experts ?—A There is no difficulty whatever.

*Sir F. H. Stewart.*—Q. By short-time contracts what do you mean, three years ?—A. Yes.

Q. Would you apply that to experts brought out by Government ?—A. I do not think I would apply that to Government work in India.

Q. Don't you think that it would be difficult to induce men to come on such short-time contracts ?—A. No.

Q. And these short-time engagements would apply both to scientific or technical expets and to the skilled artisans ?—A. Yes.

Q. Would you apply that to Indians who are taken as experts ?—A. No, I only apply it to imported men.

Q. Those in the operating house, do you take them permanently ?—A. No.

Q. On what terms are they engaged ?—A. They can be dispensed with at any time.

Q. But are they not usually kept on indefinitely ?—A. Most of them remain with us although we are at all times glad to assist them to better posts if we can do so.

*Mr. C. E. Low.*—Q. Could you state on what terms you take in Indian apprentices ?—A. We take them as regular staff men. We have on our staff a schedule of allowances for a definite number of apprentices.

Q. What educational or other qualifications do you want from them ?—A. Those who come to us usually come from one of the schools here, usually the Victoria Jubilee Institute ; they have more men for apprenticeship than we are able to take ; we have to keep within our schedule ; we rarely have any others.

Q. It is part of their course, this six months' apprenticeship training, is it not ?—A. Yes.

Q. So you take these men for six months and then they go back to their school ?—A. Yes, and we then take others.

Q. Is anybody put particularly to teach them ?—A. Yes, they are under these short-time experts, they work directly with them.

*Q.* What pay do you give them ?—*A.* Rs. 25 a month.

*Q.* Throughout these six months ?—*A.* Yes.

*Q.* Do you take any of them on your permanent staff ?—*A.* We have some; who have returned to us after graduating.

*Q.* Do you find that they keep the factory hours during their apprentice course ?—*A.* Yes, and those who come to us are specially selected by their professors.

*President.*—*Q.* We were told yesterday by Mr. Stuart Menteth that 90 per cent. of the students that he had got from the Victoria Jubilee Technical Institute have been practically of no value to him : is that correct ?—*A.* Our experience has so far proved satisfactory, but I would like to say that this system of apprenticeship is not more than two years old; and may not have yet shown its effect, so that it does not seem a fair conclusion under present methods.

*Q.* Then your experience so far leads you to conclude that there is a hopeful opportunity of using these boys ?—*A.* We are using them, we have some of them on our regular staff who are very satisfactory.

*Q.* So far you are satisfied ?—*A.* We have been satisfied.

*Q.* Then your experience so far as it goes does not support this statement of Mr. Stuart Menteth with regard to them ?—*A.* That statement must be with reference to men of an earlier period or men who had not been through this particular sort of training.

*Mr. C. E. Low.*—*Q.* What are their prospects when they join you permanently within that time ?—*A.* The highest paid local man at present is I think on Rs. 450* on electrical work ; they have every prospect, there is no reason that I can see why they should not aspire to and get positions according to their training and qualifications. The man on Rs. 450 started with us when I was with the Mysore Government probably 13 or 14 years ago ; he has been with us nearly throughout that period except for a period of about a year and a half when he was with the Steel company as assistant engineer on their electrical work ; he was trained originally in the Perambur workshops in Madras before he came to us ; he is one of what is usually called the educated class.

*Q.* Is he a Eurasian ?—*A.* Yes, he is a Eurasian.

*Q.* Have you had any experience of the application of legal standards and specifications in the working of the Indian Electricity Act ? Do you find that there is any difference between the requirements, say, at the steel works at Sakchi and here ?—*A.* I should think there would be no difference in application.

*Q.* You have different sets of officers under different local Governments ?—*A.* I do not know the Steel company's position.

*Q.* Generally speaking an entirely separate provincial Department administers the Electricity Act and the rules thereunder ; is there not likely to be divergence in the standards required by the different provinces ?—*A.* I should think so.

*Q.* Have you come in contact with the Electrical Adviser to the Government of India ?—*A.* I have.

*Q.* Does he exercise any equating functions with reference to Local Governments himself ?—*A.* I am not quite sure of his position.

*Q.* I understand there is a conference of Government electrical officers once a year ?—*A.* I do not know.

*Q.* Do you know that about a year ago a federation of electrical engineers was formed ? They met in Calcutta last year and I think they hope to arrange a meeting at Madras or somewhere : is that affiliated with any association in England ?—*A.* No.

*Q.* Would you recommend the framing of definite rules covering general principles of priority and so on in giving out hydro-electric concessions by Government something on the same lines as they have for mineral concessions ?—*A.* Yes.

*Q.* Do you think that if sites for such undertakings were plentiful for instance, rival companies might be permitted ?—*A.* I think they should give the rival company every opportunity.

*Q.* Another provision in the mining rules is that nobody is allowed more than 10 square miles for the same kind of mineral in the same district subject to certain powers of exchange being given : you don't think there is any necessity for any rules of that sort to meet the question of priority ?—*A.* I do not see any ; it does not seem that it compares very strictly with mining leases because there will be so many less occasions arising.

---

* *Note.*—When this evidence was taken I informed the Commissioner that the highest paid local man was receiving Rs. 450. Since then, another Indian expert has been appointed to one of our most responsible charges in one year's probationary appointment on Rs. 500 after which we intend increasing his pay if he is found satisfactory. This man has been both educated and trained here and possesses good qualifications both from a practical and a theoretical point of view.

*President.*—*Q.* Is it possible to amend the rules in such a way that when anybody undertakes prospecting for hydro-electric development he knows his rival and what he is going to be exposed to in the way of Government limitations, as in the case of mining rules which Mr. Low referred to? For instance when a man takes up a prospecting license he knows for certain that it gives him claim for mining for a year and he will be subject to certain conditions laid down by Government: is it practicable to draw up rules of the same kind for hydro-electric propositions?—*A.* It would be. When we first went to see Lord Willingdon in regard to the Andhra project Sir Dorab Tata said "We do not ask for a definite promise but we would like assurance from Government that we shall have priority over any subsequent concessionaire"; Lord Willingdon said "We will undertake to give you priority but on condition that when the power is required you will find the necessary money and carry out the project".

*Mr. C. E. Low.*—*Q.* Going back a little further from the point which the President raised, do you think that something equivalent to a prospecting license would be useful in this case?—*A.* I think we have something almost similar at present. We had permission from Government to prospect the Andhra valley for three years. Before definitely declaring our intention within the three years that we wished to carry out the project we had to make a further application for a concession.

*President.*—*Q.* How are you going on with that scheme, how is the state of the work?—*A.* Well, at present we have before us the draft conditions submitted by Government showing what we will have to undertake in connection with the land acquisition for the Andhra project; they are different in some minor respects from those that we put forward in connection with the Hydro-Electric scheme; that draft has been approved by us.

*Mr. C. E. Low.*—*Q.* There is one more point and it is that the Bombay Government state 'anywhere between such and such limits, we want irrigation and nothing else'; well, in the case of other provinces you have not got the same rule.—*A.* As a means of getting over such difficulties the first thing I did was to go to the Secretary of the Public Works Department, and he gave me complete information as to every irrigation project they had prepared or had in mind which was likely to be put up in the whole area; that gave me knowledge as to the portion that would be used in that way; then I started my scheme.

*Q.* I doubt whether they could oblige in the same way in other provinces?—*A.* Perhaps not.

*Q.* Of course the present mining rules were drawn up after consideration of opinions in a conference at Simla, and the draft rules were again revised by the Government of India after experience of working them. I think they now work pretty well. Do you think a similar procedure would lead to similar results in this case?—*A.* It will.

*President.*—*Q.* What we found in connection with the mining rules was that in the absence of specific conditions laid down for the guidance of Local Governments and district officers, delays were caused not by any desire to delay or by carelessness, but because the district officer could not make up his mind as to what he ought to recommend to Government, each applicant put in some kind of special conditions of his own; the result was that there were serious delays, and by making the rules clearer and simpler it is possible for the district officer to say that a certain condition does or does not come within the rules: in the same way it has occurred to us that we might be able to suggest a scheme by which Government could draft rules defining the grant of concessions for hydro-electric propositions. Do you think that it would be practical and desirable?—*A.* Yes, it is well worth considering.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* In the second paragraph of your evidence you say "The lesser educated make the best labourers. Education induces men to aspire to higher walks of life"; but I suppose you are not against primary education?—*A.* No, I have already said that. I am referring to higher education.

### WITNESS No. 338.

MR. S. N. POCHKHANAWALA *Manager, The Central Bank of India, Limited Bombay.*

*Mr. S. N. khanawala.*

### WRITTEN EVIDENCE.

The following difficulties, in my opinion, largely contribute to deter the promoting and conducting of industrial enterprises in India:

(1) Want of application of science to industry.

(2) Lack of expert advice.

(3) Absence of State patronage and of facilities of transport.

(4) Want of monetary facilities.

These are the main causes of failures in most of the industrial concerns promoted in India. If efforts are directed in these lines, I should think the chief difficulties can be got over; and we may, in the near future, be able to see a good many enterprises taken up by our own people without the Government guaranteeing monetary help or interest on capital.

(1) *Application of science to industry.*—Science and industry are inseparable forces, in these times, for the successful development of industries, and cohesion between them is indispensable. When we compare the current methods of some of our running industries with those in vogue in the civilized industrial countries, we at once realize the urgency of placing them on a scientific basis in order to obtain more successful results. Finished products in our industries are not consistently maintained at a uniform quality.

At present the general prevailing idea seems to be that only practical men are needed for manufacturing industries, and University trained men in chemistry are not employed to elucidate the many problems of everyday occurrence in factories. If efforts are directed to get the right men for this object much good can be done to stimulate various existing industries and many of the " waste products " can be utilized to advantage. There is no demand at present for such trained hands in industries, and naturally we have very few persons among us who care to make a special study of science for industrial purposes. Of course, no sooner industrialists begin to appreciate the utility of combining science and industry, a large number of University trained men are certain to come forward to take a direct interest in the development of industries instead of going in for the already overcrowded professions.

(2) *Want of expert advice and experience.*—Unfortunately it is not often that we get " Tatas " from amongst us to spend their own private money with a view to gain experience and expert advice at first, and then, if results prove satisfactory, to invite the investing public to share in the prosperity of the industrial enterprises fostered under their care. Hence it becomes absolutely necessary to get Government aid. Without assistance, advice and encouragement from this direction, private industrial enterprises would take centuries if left on their own slender resources.

(3) *Government aid and the form in which it can be given.*—At the first step of Government co-operation for industrial developments in India, a Government Industrial Department, with principal offices at each of the Chief Presidency towns supported by research laboratories, should be established at the first opportunity. These departments should always be kept up-to-date with the knowledge of the latest scientific and technical implements. They should be asked to inquire into the raw materials produced in their own respective presidencies and they should be required to study, with the help of experts, the probabilities of opening industrial concerns for turning raw products into useful articles. Results of these expert investigations should be given full publicity from time to time, with facts and figures, and the people should be given a rough idea as to the approximate capital necessary to work out successfully each of the industries. Government should ungrudgingly offer to place the services of the experts at the disposal of those who may be thinking of going in for any such industry as a private or joint stock enterprise; and Government should further promise such promoters all facilities regarding land, water and rail communications. If this is done, many enterprising firms, individuals and capitalists are sure to be induced to come forward and profit by the result of Government investigations. Great care should be taken, however, by the Government in the selection of experts; and the figures should be carefully scrutinized before giving them publicity, as incorrect and premature statistics would naturally have very adverse effects on the promotion and development of future industries.

**Methods of State aid.**

Guarantee of interest by Government, at any stage of the enterprise, does not appear to me to be a suitable form of State aid to industries with a view to invite capital. The history of a good many old and new industries, now successfully working in India, will bear out my opinion. A glance at the successful promotion and working of several cotton mills, jute mills, Tata Iron and Steel Works, Tata Hydro-electric Works, various cement companies, etc., definitely prove that Indian capitalists have invested crores of rupees in industries well-worked out and promoted under expert advice and under honest management, without Government guarantee as to the interest on their investments.

State aid should be directed, I think, in the following manner:—

Government is always, through the investigations of its experts, in a better position to determine the right place for suitable industry; and if after pointing out the proper spot, Government guarantees the facilities of transport and agrees to help in overcoming the preliminary difficulties, with assurances of purchasing the products for their own requirements, a good many industries would be easily established through private enterprise and without much further aid from the Government. Even to-day there are a good many industries suffering from heavy railway tariffs, which could be placed on a better and more advantageous footing if protection in this matter is afforded to them through the intervention of Government.

(4) *Want of monetary facilities.*—The history of industrial progress in all civilized countries of the world proves the necessity of sound financial organizations for helping and developing industrial enterprises. Success and progress of industry in Europe and America is due mostly to the financial and educational systems there—which show that unless banking is closely linked with industries progress is not possible.

**Existing banking facilities.**

The banking facilities in India can be divided in three groups :—

(1) Presidency banks.
(2) Foreign banks.
(3) Local banks.

Presidency banks have the advantage of Government monies, and they render great service to trade by discounting commercial bills and lending monies on raw produce, imported goods, etc. By a little change in the Presidency Banks' Act, the Presidency banks can be easily induced to make long period loans to deserving industrial concerns after careful investigation in their working and business prospects through Government experts.

The foreign banks are worked more or less for the interest and development of foreign trade, and they assist their own national trade and industry. They can hardly be expected to do much in the internal advancement and development of Indian industries. Sometimes they do give the benefit of their surplus monies to industrial enterprises of large dimensions, and a few of the recent huge industrial concerns have received much help from some of the English banks.

Local banks follow the Presidency banks in the method of advancing and discounting of bills ; it is not possible to expect from them long period advances for industrial concerns owing to their limited resources. Some of these banks advance monies on zamindaris which they consider to be a better class of security than Indian industrial enterprises. The chief difficulty in the way of banking facilities to trade and industry in India is that most of the important banking concerns here are managed by foreigners, who are not in direct touch with the general class of trades-people but who come in contact only with the "selected few of the Indian aristocracy." It is only to this natural drawback—and not to any national or racial tendencies, as some people put it—that banks under European management are unable to render that service to trade and industry which people of other countries receive from their own bankers in other parts of the world.

**How far financial assistance from Government is required.**

I strongly deprecate the idea of direct monetary help by Government to industrial concerns as well as the State guaranteeing interest for the whole or even a limited period. I do not think the time has yet come for even the establishment of industrial banks under Government aid or control. There are hardly any industrial concerns of importance at present which can be shown to struggle for want of monetary help. It is rather the want of large manufacturing industries which attract our attention, and not want of industrial banks—which, in my opinion, can never serve the important purpose for which they are meant at the present stage of industrial developments in India. Big manufacturing industries here, started under the management of experienced and trustworthy promoters, very seldom experience the difficulty of securing the necessary capital and monetary help, as such concerns are readily helped by the present banks and investing public. But I must concede the necessity of monetary help for smaller manufacturing industries. I have found that very often small industrial and commercial concerns under Indian management do require a more generous mode of financing, and they deserve every care and attention from the Government. High rates of interest and lack of sufficient capital prove invariably serious handicaps to their prosperity and hinder their progress. There are a number of small industries conducted by experienced men, but with comparatively insufficient capital for producing the best products through improved methods ; these same are frequently formed to drag on unsuccessfully for years. Owing to monetary difficulties their progress and output is slow ; they are unable to take advantage of the latest implements and cannot adopt advanced scientific methods in their work.

**Presidency banks should rediscount bills.**

No doubt the Presidency banks serve a very important purpose in the internal trade and industry of India, but they can render a good deal more help indirectly to other industries and small manufacturing works in the manner followed by banks throughout the continent of Europe, viz., rediscounting of bills of smaller banks. I know that London bankers have a great prejudice against this system, and it is only in times of panic that rediscounting is thought of by them with the Bank of England ; otherwise in the ordinary course of business the system is not encouraged. But this prejudice of London bankers to the aforesaid mode of working is not shared by bankers anywhere else on the continent. I do not see why it should find favour in India, too. We should follow in this respect France, Japan, Germany and Austria and other foreign countries, where the system has proved greatly beneficial for the development and progress of trade and industries, and through which the smaller banks come in touch with the central institution holding Government monies. The central banks in all principal parts of the continent do not consider the smaller banks as their rivals in business, but encourage

Peculiar conditions of India.

them and extend their facilities owing to the very useful services these smaller banks can render to the trade and industry of the country. This dictum has greater force in India where banks are conducted by foreigners who hardly come in contact with the majority of people engaged in different trade and industries. In no part of the world, except in India, are the destinies of people engaged in internal trade and industry at the mercy of banks conducted by persons other than their own countrymen, who can hardly be expected to look at the connection between finance and industry as a matter of *national interest*. English bankers can scarcely be expected to encourage German or Japanese trade and industry, and so also the German and Japanese bankers in their own turn. Each banker is anxious for the advancement of his own national interest; and as a result, everywhere in the world, except in poor India, there is a greater contact and closer relationship between finance and industry which necessarily helps the increase of wealth. In India conditions are quite different. Means should be adopted to cultivate the affinity between finance and industry stated above. The principal step which should be adopted under the present circumstances without much difficulty is that the central institutions in India (I mean the Presidency banks) should be induced by Government to encourage smaller banks under Indian management, and means should be devised to bring them into closer touch with the Presidency banks. In the development of small industries and trade, banks under Indian management must play an important part in the natural way of things. Government should help Indian banks, under good management, directly or indirectly through the Presidency banks, and should begin to take interest in Indian concerns, which show satisfactory results, by appointing their own auditors to increase public confidence in such Indian-managed banks. Some time back the Government issued a notification announcing that they were prepared to make loans to the Presidency banks on security of Government paper at low rates of interest in case the Presidency banks wanted temporary accommodations to meet general trade conditions. If money is to be lent on security of Government paper, why should this facility of low interest be denied to other banks by Government on the same kind of securities offered by them?

General.

In the present state of affairs, in my opinion, it is impossible for us to compete at once with many foreign industries after the war, even with raw materials at our side. The reason is that we lack scientific and industrial experience in various lines and are deplorably short of skilled labour. Those who shout themselves hoarse over industrial revolutions in India, after the war, seem to forget the chief requisites necessary to such developments, viz.—an excellent system of primary and secondary education; high grade technical training; special scientific study; and application of science to industry. It must take years of close study—scientific and industrial—before we can bring about the desired change with Government co-operation. It must be remembered that one of the greatest factors in productions is *individuality*, and it is desirable that in every industrial and commercial department under Government and private management, all men, Indians as well as Europeans, should have equal opportunities to show their own individual merits. It is only this free play of individuality that can create men with ideas, and through which alone the scientific, industrial and economic progress of India is possible. The present backwardness of Indians in many departments of commerce, industry and science is mostly due to the fact that they are seldom given opportunities to show their merits. Sometimes the most capable and intelligent find it impossible to rise in industrial and scientific pursuits, and to show and develop their own merits, as all opportunities are closed against them in Government departments as well as in other concerns worked or managed under foreigners. Government should begin to take interest in such men by employing them and training them under experts and should encourage their employment in private industrial concerns so that they may get a good field for work and can show their individual merits. If this is done, and the suggestion about monetary difficulties is followed in a proper spirit, in the next few years we can easily expect a number of large and small industries prospering without financial aid from the Government or any Government guarantee as to interest on investments in industrial concerns.

### ORAL EVIDENCE, 27TH NOVEMBER 1917.

*Hon'ble Sir Fazulbhoy Currimbhoy.* *Q.* In your second paragraph you say, "We may in the near future be able to see a good many enterprises taken up by our own people without the Government guaranteeing help or interest on capital." By "we" do you mean the Bombay Presidency or India?—*A.* I mean India.

*Q.* Do you think the industries in India have come to that stage when they can do without Government help?—*A.* The people have not so been brought up in industries. I explain later on about it.

*Q.* Later on you say quite a different thing in your fifth paragraph, "Hence it becomes absolutely necessary to get Government aid"; whereas in the first paragraph you say, "without the Government guaranteeing monetary help or interest on capital."—*A.* Provided the four difficulties that I have stated above are solved. Then the result will be that we will be able to get on with our industries without Government aid.

*Q.* But that will take some time. No. 3 you say is "Absence of State patronage and of facilities of transport." By State patronage you mean buying the goods or products ?—*A.* That is, the Government must buy the products which they need.

*Q.* And if they don't need they must not help ?—*A.* They may not buy what they do not need.

*Q.* In your paragraph 3 you say, "Results of these expert investigations should be given full publicity from time to time, with facts and figures." Do you want this expert advice to be given free ?—*A.* To be given free in the beginning.

*Q.* But suppose the company is a strong one, and still they need the advice ?—*A.* Then they may be charged. To small industries the advice should be given free.

*Q.* Then you are against the guarantee of interest by Government ?—*A.* Yes.

*Q.* Why do you think that will not help the industry in some way, at least if Government guaranteed the concern ?—*A.* Guarantee of interest in big presidencies is not at all advisable; but in small towns it might be all right.

*Q.* But supposing there is a big industry, a copper mine or a big sugar factory, and they want big capital. Tata's are not in Madras, the United Provinces and the Punjab, and if they want to start the industry with 100 or 50 lakhs capital, don't you think that the Government guarantee will help them ?—*A.* I do not think so.

*Q.* Will they be able to raise the money ?—*A.* If there is a big industry to be started in Madras, and the people in this presidency are satisfied with the prospects of its success, they will pour in the money there.

*Q.* Is it right that Bombay people should subscribe anywhere and everywhere. If people in Madras, for instance, want to put money in industries, don't you think with a Government guarantee, people would be inclined to put in the money ?—*A.* In that case I think so.

*Q.* Then you say, "Even to-day there are a good many industries suffering from heavy railway tariffs". What are the railway tariffs ?—*A.* They have to pay more on account of the heavy railway freight, and are not able to compete with foreign goods.

*Q.* The foreign goods get cheaper rates, and the internal trade gets higher rates ?—*A.* Yes, and therefore they are not able to compete with foreign business.

*Q.* Then you come to the banking. You think that Presidency Banks should take up the functions of State Banks ; isn't that so ?—*A.* Not State Banks.

*Q.* You want that Presidency Banks should give advance to industries under the advice of Government experts ?—*A.* Yes.

*Q.* Why not other banks ?—*A.* Government has no control over other banks. Government money is mostly in Presidency Banks.

*Q.* "Mostly" : how much ?—*A.* I do not think in India Government places money with other banks.

*Q.* But they have got money in the Currency too. Do you know how much the Presidency Banks have in the busy season ?—*A.* Four to five crores ; you mean whose money ?

*Q.* Government money in the Presidency Banks ; in the busy season how much have they got ?—*A.* Nothing in comparison with what they have in the slack season.

*Q.* When the Presidency Banks are financing crops, how much money does Government put in ?—*A.* The minimum is 50 lakhs.

*Q.* Do you think for this 50 lakhs they are bound to the Government to finance industries ?—*A.* What I mean is that if the Government's attitude is in favour of the Presidency Banks helping industries, then the amount of advances to the Presidency banks should be increased, and Government should place as much money as they can spare, so that the Presidency banks can help those industries.

*Q.* You know the Presidency banks are working under charter, and Government deposits with them 50 lakhs of rupees : don't you think it more advisable that Government should start industrial banks, put in money and advance to industries ?—*A.* That would be better.

*Q.* The Presidency banks have to look to their shareholders ; it is not a philanthropic institution.—*A.* Certainly

*Q.* When we visited the other Presidencies the general complaint was that Presidency banks don't advance money to Indians ?—*A.* Not here. I do not think there was any such complaint ; not in the Bengal side either, but I think in Madras there was.

*Q.* Do you think if Government started industrial banks in different centres and advanced money on long-term loans under expert advice, that would be of great help to industries ?—*A.* It might, but at present I do not think there are sufficient industries where money can be employed. There are small ones only.

*Q.* But if the Industries Department comes in, and if industries are started, do you think that the people who want to start will need the help ?—*A.* I do not think much of it at present.

*Q.* Do you think the need is greater in the interior ?—*A.* I have no experience. I have experience of Bombay and Calcutta.

*Q.* In Calcutta do other banks advance money largely to industries ?—*A.* Yes, they do.

*Q.* Exchange Banks ?—*A.* No, but some of the local banks do. They help tea, jute, etc.

*Q.* Are the banks in Calcutta advancing on jute shares too ?—*A.* Local banks do.

*Q.* What are the local banks ?—*A.* The Allahabad, Alliance, and also the Mercantile.

*Q.* And they also advance to the jute mills ?—*A.* Yes, their principal business is with most of the European firms.

*Hon'ble Sir R. N. Mookerjee.*—*Q.* You have a branch there, have you ?—*A.* Yes.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* You say, " There are a number of small industries conducted by experienced men, but with comparatively insufficient capital for producing the best products through improved methods ". There you need the financial help ; isn't that so ?—*A.* Yes, but the question is whether we need it from the Government, from the Presidency banks or other banks.

*Q.* The other banks are all different ; if they like they can give, but if there was an industrial bank it would give.—*A.* The question is whether we have sufficient industries of that nature. There are small industries which Presidency banks can help, if there is a change in the charter.

*Q.* If they don't want to help, then who can compel them ? They have not got that function of financing the trade, whereas the industrial banks would have.—*A.* That is so.

*Q.* Then you say, " We should follow in this respect France, Japan, Germany and Austria, and other foreign countries ". Do you mean State banks ; what are those Continental banks ; are they Government concerns ?—*A.* With Government subsidies. In England there are banks who rediscount bills. In Japan and other places the banks under Government help and Government subsidy discount bills.

*Q.* But the functions of those banks are quite different. Suppose, for instance, the Bank of Bombay discounted the bills of other Indian banks in Bombay ; the functions of those banks would be similar, whereas it is different in the case you mention.—*A.* Here, too, the local banks do the business of smaller traders. If the latter got facilities from the small Indian banks, and if those bills were rediscounted by the Presidency bank, they would render a good deal more help to industries.

*Q.* But they largely do so now ?—*A.* Only in the case of a certain class of people.

*Q.* Here the local banks finance small traders ?—*A.* That would relieve the burden from smaller traders who have to pay a large amount of interest to shroffs who in turn get a profit by discounting bills with the Presidency bank.

*Q.* You are mixing up State banks with Presidency banks. The Presidency bank is quite a different concern from the State bank in Japan.—*A.* That is so ; but so far as we have not got State banks, it should be done.

*Q.* But if we have State banks there these things would be done ?—*A.* Yes, then the Presidency bank will be in the same state as other banks, and the State banks will necessarily be in a better position to work in the interests of the country than the Presidency bank.

*Q.* But the Presidency bank at present is working under the Act, and they have many difficulties in advancing money ?—*A.* Yes.

*Q.* If the Government put more money in the Presidency banks, then they could advance ?—*A.* Yes, and then they could help industries considerably more.

*Q.* Do you think Indians ought to be encouraged by Government in scientific, commercial and other departments ?—*A.* Yes, so that they can show their capabilities.

*Q.* Do you think that present financial facilities for industrial purposes in Bombay are quite enough ?—*A.* Yes.

*Q.* Without industrial banks ?—*A.* Without that.

*Mr. C. E. Low.*—*Q.* Under the head of banking facilities you told Sir Fazulbhoy that you thought the Presidency banks might get larger Government deposits. Those Government deposits, I understand, are made from Government's working balances, but they don't keep those balances in larger amounts than they require.—*A.* In the Presidency banks money is placed, such as that which Government does not require for its ordinary use.

*Q.* What money has Government got which it does not require for its own business ?—*A.* In the Currency Reserve, for instance, they keep large balances, part of the gold standard reserve. If they can lend that it would help.

*Q.* At any rate, whatever money the Government places at the disposal of the Presidency banks, if it is to be used to finance industries, it is liable to be locked up for long periods.—*A.* That would depend upon the nature of the industry.

*Q.* What do you mean by the financing of industries ; do you mean providing capital expenditure for industries, or do you mean working capital ?—*A.* Working capital.

*Q.* What are the difficulties at present about industries obtaining working capital ?—*A.* Now the Presidency banks can only lend money for three months. Of course it can be renewed after that, but practically the money is only lent for three months. The industry has to be ready with the money whether they renew or not. It is left to the discretion of the bank whether they will renew or not.

*Q.* Are you opposed to the idea of banks financing capital expenditure for industries ?—*A.* Yes.

*Q.* You approve of it ?—*A.* I do not approve of it.

*Q.* You don't approve of banks taking up shares in industries like the big German banks are said to do ?—*A.* No.

*Q.* What are your reasons against it in this country ?—*A.* Of course that can only be done if they have got expert advice.

*Q.* And also if the money is available for long periods without being liable to withdrawal, such as share or debenture capital or very long-term deposits.—*A.* Yes.

*Q.* Do you think such money would be forthcoming in this country ?—*A.* Yes, for first class financial concerns with good reputation, money is forthcoming on long-term debentures.

*Q.* You say, "It is rather the want of large manufacturing industries which attracts our attention, and not want of industrial banks, which, in my opinion, can never serve the important purpose for which they are meant, at the present stage of industrial development in India." And later on you say that you are inclined to think that industries should come first and industrial banks afterwards.—*A.* What I mean is that the development of small industries is not practically helped to a greater extent. The big industries are very rarely taken up, and unless there are a number of such industries started, industrial banks would not find much scope for their work, if they stick to industrial business only. I mean for the present our banking institutions do help big industrial concerns to a certain extent.

*Q.* You are alluding to the Bombay Presidency ?—*A.* Yes.

*Q.* I am not quite sure that I follow your allusion in the following remark, "a few of the recent huge industrial concerns have received much help from some of the English banks." Do you mean in India ?—*A.* My experience is chiefly confined to the Bombay Presidency.

*Q.* You mean the large industrial concerns launched in the Bombay Presidency have received help from some of the Exchange Banks ?—*A.* Yes.

*Q.* You mean for working capital ?—*A.* Yes.

*Q.* You say, "Some time back the Government issued a Notification announcing that they were prepared to make loans to the Presidency banks on security of Government paper at low rates of interest". That had special reference to the slump in cotton prices, hadn't it ? That was done to meet a very special emergency.—*A.* Other local banks were also advancing money on cotton.

*Q.* At the same time ?—*A.* Yes.

*Q.* On what margin ?—*A.* About 25 per cent.

*Q.* At the end of 1914, September or October 1914 ? And on a margin of 25 per cent. ?—*A.* Yes, about that time. Generally we keep a margin of 25 per cent. When there is a slump that margin is reduced.

*Q.* You say "Sometimes the most capable and intelligent find it impossible to rise in industrial and scientific pursuits, and to show and develop their own merits, as all opportunities are closed against them in Government departments as well as in other concerns worked or managed under foreigners." Do you think that is an exact statement of the case ; do you think *all* opportunities are closed against them ?—*A.* No, not all.

*Hon'ble Sir R. N. Mookerjee.*—*Q.* Am I right in assuming, from the summary of your evidence, that in your opinion there is not enough scope at present for industrial banks ?—*A.* Yes, especially restricting their operations to industries only.

*Q.* You think there are not sufficient large industries for big banks to finance?—*A.* I would put it like this: there are some industries which are suffering at present, simply for lack of working capital, or for lack of help from banks like industrial banks.

*Q.* I gather from your evidence that you think there is not enough scope for purely industrial banks.—*A.* Yes, for industrial banks under Government aid. Of course any local bank might take up any industrial section and help industries. That would greatly help present industries. But if industrial banks with aid from Government were to devote themselves simply to industrial enterprises, in my opinion, there would not be enough scope for them.

*Q.* But why Government? Any industrial bank, if it comes to that?—*A.* An industrial bank without the aid of Government is open to do other operations.

*Q.* You mean only for industrial purposes?—*A.* If a bank simply restricts its operations to industrial purposes, I do not think there is enough scope.

*Q.* Then you say that in European countries the European banks help industries because they know the people well, but in your experience in Bombay, or if you have any experience in Calcutta, do you know any instances where industries could not get money, because the bank did not know them?—*A.* What I mean is that there is always difficulty for small traders, or traders less known, to get money.

*Q.* Then again you say for smaller industries there is ample field, and that Government should come forward and help to train men?—*A.* If Government banks with industrial purposes are started, they would look more to such concerns which are working as industries. The other banks have not got that special line of their own, as they have got other businesses in other lines, and they do not care much for industrial business.

*Q.* What is your idea of assisting a small industry; how would you assist such an industry?—*A.* Small industries could only be helped by coming in touch with them; it is very difficult at present for Presidency Banks or Exchange Banks to come into touch with them. Those small industries are so far worked by the help of shroffs.

*Q.* To develop and encourage small industries do you think Government should have banks to help them?—*A.* Government or Presidency banks.

*Q.* Presidency banks, as you have heard, cannot do it. Then you come to this conclusion that there should be separate banks started by Government to help these industries?—*A.* Yes. Or there should be local banks who would be in a better position to come into touch with smaller industries than even a State bank.

*Q.* We can recommend Government to do that, but we cannot make people start such banks.—*A.* If Government helped local banks, necessarily they can be encouraged.

*Q.* Those local banks must be helped by Government?—*A.* In some way.

*Q.* In which way?—*A.* In a number of ways. At present if local banks have got the best gilt-edged securities, they are not sure of getting money on those securities. If the Presidency banks refuse to give money on account of pressure on their own resources, necessarily they are quite helpless, and for this purpose they have not got any Government aid to raise money even on Government securities.

*Q.* Your idea is that these small banks should have the facilities to recoup their finance from Presidency banks on securities?—If these Indian local banks can have the assurance of getting money on gilt-edged securities from Government in times of pressure they will have better facilities to work upon their resources in the busy season too.

*Q.* Have they no such facilities now?—*A.* Only from the Presidency banks, but the Presidency banks have a right to refuse them money if there is a strain on their own resources. Even if a bank has got 50 lakhs of Government money, in time of stress it is very difficult to get money on those securities.

*Q.* Supposing a small bank is opened in Bombay or Calcutta, and they want, say, 50 lakhs, where are they to apply for those 50 lakhs?—*A.* Over their gilt-edged securities. Supposing there is a stress on their resources, even if they have got gilt-edged securities, it is impossible to secure the money.

*Q.* What do you suggest?—*A.* If the law is open to lend them money on gilt-edged securities, they will be in a better position, at least in times of stress.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* As you say, suppose you don't want to lose interest in your bank, and want to invest in Government paper, at times of need you say banks should advance money. The Presidency bank does not advance money when they are in need themselves of money. They can go to Government on their paper and give to industries if Government are unable to give them money, they don't get any, and they cannot give any to you.—*A.* That is the trouble with the Presidency bank and other banks.

*Hon'ble Sir R. N. Mookerjee.*—*Q.* What is the remedy?—*A.* The Government must lend them money.

*Q.* To whom are they to apply? Go direct to the Government of India or the Finance Department?—*A.* No, they can go to the Accountant General.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* The whole thing is you don't want to lose interest on your own cash?—*A.* Not necessarily.

*Mr. A. Chatterton.*—*Q.* I take it that you are in favour of the establishment of small banks in the mofussil, rather than an increase in the number of branches of the Presidency banks?—*A.* If there are smaller branches of the Presidency banks they will help considerably in the development of the trade of the country.

*Q.* Do you want these branches to be deposit or operating?—*A.* Depositing as well as operating; *i. e.*, lending money on products or trade.

*Q.* If you establish local banks or central banks in Presidency towns, you could not do much good until you could draw the money available in the country?—*A.* There would be deposits as well as advances; both the operations should be carried on by branches.

*Q.* Then you say that there is not sufficient scope for the establishment of purely industrial banks. What do you mean clearly by industrial banks?—*A.* Banks whose operations are simply restricted to industries, to long-period investments.

*Q.* How do you propose, in the first instance, that the development of small industries throughout the country should be financed?—*A.* By the branches of the Presidency banks, or by Indian banks.

*Q.* You want some financial assistance from Government. Would it be, in your opinion, a sound way to develop the small industries of the country through the Department of Industries by empowering the Director of Industries to make small loans of the nature of *takavi* loans for local industrial purposes?—*A.* I am not much in favour of it. Of course, where there are no other resources in the way of getting such aid, these are to be encouraged.

*Q.* But you say there are no resources at the present moment?—*A.* Outside the Bombay Presidency there may be many resources; my knowledge is restricted to the Bombay Presidency.

*Q.* If you have a properly equipped Department of Industries, and a large number of experts able to deal with these small industrial efforts, would you empower the Director of Industries in Bombay or Bengal to grant Government loans to these small *entrepreneurs*?—*A.* Yes.

*Sir F. H. Stewart.*—*Q.* Do you mind telling us what your banking and trading experience has been?—*A.* About 18 years.

*Q.* How did you begin?—*A.* I began on Rs. 20 pay at the Chartered Bank; I was for seven years at the bank, then I joined the Bank of India.

*Q.* When you went to the Chartered Bank you had no special training of any sort?—*A.* No; from there I studied for the London Institute of Bankers Examination.

*Q.* You passed that?—*A.* Yes. Then I joined the Bank of India. After serving seven years in the Chartered Bank I was taken into the Bank of India from the start, and was for five years in the Bank of India. The Central Bank has been established six years.

*Q.* You have got a branch in Calcutta?—*A.* Yes.

*Q.* Have you any other branches?—*A.* One at Karachi.

*Q.* Is that also a new one?—*A.* Yes, it was started about three years ago.

*Q.* Calcutta was started only last year?—*A.* Yes.

*Q.* How do you recruit your staff?—*A.* We have much difficulty in getting good trained hands. For the present we are employing graduates and teaching them.

*Q.* Your staff is entirely Indian?—*A.* Yes.

*Q.* Is there a definite banking course at the College of Commerce?—*A.* Yes.

*Q.* Have you any employees who have been through it?—*A.* Yes, many of my employees attend banking lectures too.

*Q.* Would you consider that the training they get there is sufficient to qualify them for positions of trust in the bank; or have you got to give them a practical training?—*A.* Yes, I have to give them a practical training.

*Q.* Do you know many Indians who have passed this examination of the Institute of Bankers?—*A.* I was the first and since then two or three more have passed. My Calcutta Manager has also passed the examination.

*Q.* Do you consider that banking legislation is necessary?—*A.* Yes.

*Q.* For what specific purposes?—*A.* In 1913 during the crisis, those reverses among Indian banks that took place were more or less because those banks were not conducted on secure lines, so some legislation is considered necessary.

*Q.* You think it is necessary to prevent abuse of the name "Bank" ?—*A.* Yes.

*Q.* You are also in favour of the appointment of Government auditors ?—*A.* Yes.

*Q.* In all banks ?—*A.* Yes.

*Q.* Would you have any legislation as to the proportion of capital which has to be paid up ?—*A.* Yes. The bank should not be allowed to start with too small a capital.

*Q.* Can you think of any further point which should be taken into account ?—*A.* No.

*Q.* There is no sort of banking examination out here that your staff could take from time to time ?—*A.* Only the London Chamber of Commerce.

*Q.* You recommend a change in the Presidency Banks Act to enable them to make advances for long periods ?—*A.* Yes.

*Q.* Is that the only specific change which you want to have in the Presidency Banks Act ?—*A.* Yes.

*Q.* With reference to the small industries which you say you would like to see financed through branches of the Presidency banks, or through small local banks, how are they financed at present ; by the shroffs ?—*A.* Yes.

*Q.* Who exactly is the shroff ?—*A.* A money-lender, a "sowcar".

*Q.* We were told the other day that the shroff was a most excellent person and was much less exacting than the banks, and generally charged about 6 per cent.—*A.* No ; 6 per cent. is between merchants and merchants, between shroffs and shroffs, but the others, the smaller traders, are charged exorbitant rates.

*Q.* Then the shroff and sowcar are very much the same ?—*A.* Yes, just now we found that the shroffs at Jharia are charging about 20 to 30 per cent. interest to small colliery proprietors.

*Q.* In regard to these branches in Karachi and Calcutta, how long have you had the managers, and what training have they had ?—*A.* They have all been sent from here after good training at our Head Office.

*Q.* How long have they been with you ?—*A.* They were with me for 5 to 10 years before going to the branches.

*Q.* You consider them thoroughly competent to carry on the business of the branches ?—*A.* Yes.

*Q.* Do you have a regular system of inspection of the branches ?—*A.* Yes.

*Q.* Who does that ?—*A.* I myself.

*Q.* You think it would be a good thing if Presidency banks went in for rediscounting the bills of small banks ? If it is a sound business there is nothing to prevent them, if they choose, is there ? But you admit that it is a thing which the bankers in England have a prejudice against, and may lead occasionally to very serious trouble ?—*A.* Yes.

*Q.* You talk about small banks not being able to get advances on gilt-edged securities. What exactly do you mean by gilt-edged securities ?—*A.* Government paper.

*Q.* Do you know cases in which small banks have been unable to get advances on Government paper ?—*A.* No ; but it is to my knowledge that Presidency banks do not bind themselves to lend money on Government paper, unless they can spare it.

*Q.* It depends on the strength of their own resources at the time, does it not ?—*A.* Yes.

*Q.* That is not really a grievance ; it is a position common to all banks, is it not ?—*A.* Yes.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* Do you think that industrial banks have no scope at present, because there are no industries ?—*A.* No scope simply for industrial purposes ; if they do other sorts of business, it would be all right.

*Q.* Supposing a big industrial bank is started, it can help industries as soon as they are started ? When you talk of Continental banks, do you know how industries were started in Japan or Germany ?—*A.* I have no idea.

*Q.* Is there any bank or any institution or shroff who advances money on the machinery or buildings of a new industry ?—*A.* No.

*Q.* In Japan and Germany they started industrial banks, so that they can lend money on the buildings and machinery. Supposing I start to-morrow a glass factory, which a Government expert says is a good industry and is bound to make a profit. Even then there is no one who will advance money on the building and machinery ; so how will I start ?—*A.* You cannot unless public money is forthcoming.

*Q.* At a high rate of interest from the Marwaries ?—*A.* No, share capital.

*Q.* If I am a new man, if I am not known and want to start an industry; if I have experience and cannot get the money, such industry cannot be started; so don't you think if we want to develop industries like Japan or Germany, industrial banks are essential?—*A.* Yes.

*Q.* You talk about the shroffs giving at 24 per cent. Have you heard of any shroff in Bombay giving at that rate? The Bombay shroffs lend money at nearly bank rate or 1 per cent. more.—*A.* Not less than 10 per cent. Big shroffs lend money among themselves at very cheap rate.

*Q.* In regard to financing cotton, don't you think that shroffs lend money at low rates?—*A.* I think differently of shroffs, meaning those money-lenders up-country, not Bombay shroffs.

*Q.* Bombay shroffs are as good as banks; they finance cotton and other produce?—*A.* Some of them do but the small traders are never financed at low rates.

## WITNESS No. 339.

## AHMEDABAD MILLOWNERS' ASSOCIATION.

*Ahmedabad Millowners' Association.*

### WRITTEN EVIDENCE.

### *I.—Financial aid to industrial enterprises.*

Capital.

Shyness of capital in India does exist in cases of untried industrial enterprises started by men who may be technically trained but who have no reputation as successful organizers and managers. Money is forthcoming for concerns started by prominent capitalists, in whom people have confidence for good and efficient management. Money is forthcoming from investors in our city and from adjoining towns. They are attracted by the prospects of good rate of interest and appreciation in the value of shares. Most of the new industrial concerns suffer from under-capitalization. In most of such cases loans have to be secured by mortgage of plant and buildings. The rate of interest is high, and as a result the charges are so great, that the concerns have to be wound up before they begin to pay well.

With the exception of the cotton ginning industry we know of no kind of industrial enterprise where more concerns have been started than can be maintained in full-time employment, but as the cotton crop varies in bulk from year to year it is not possible to stop over-congestion by Government legislation, and so we think it unnecessary to go further into details on the subject.

Government aid.

In our opinion Government should adopt a liberal policy of giving aid to industries. Recourse should be had to all the eight methods suggested in question No. V, Section I, and one or more of them may be availed of as may be necessary to meet the exigencies of any particular industry. Government should safeguard its interest by appointing directors or auditors. But when Government directors are appointed on the boards of industrial or commercial concerns they should not have the power to veto the decisions of the directors. Such powers have been given to Government directors on the boards of branch line railways. If the Government director were to be vested with such powers, the other directors become advisors to the Government director. Then for all practical purposes the board need not exist at all. We therefore wish to lay special stress on the point of giving the Government director no such powers as are not enjoyed by the other directors.

We are in favour of State-pioneering industries. We consider that this is the duty of every Government which is anxious to develop the resources of the country, and with proper organizations Government should be capable of pioneering industries on commercial lines. For industries that do not require pioneering and for the starting of which private capitalists or companies are ready, Government should supply expert advice and expert information, make preliminary local inquiries and give financial and other assistance. When capital is shy for any industry and when chances of success are not quite certain, Government should pioneer factories. The pioneered factories should be closed only when it is conclusively proved that in spite of every attempt made to make it a success the working has not been successful on account of there being no scope in the country for the particular industry. The pioneered factories should be handed over to private capitalists or companies when a sufficient number of Indians are trained to run the factories without the assistance of foreign experts and when private companies or capitalists being satisfied with the experiment are either willing to start factories for the same industry or are willing to take it over. We are strongly opposed to Government becoming manufacturers. Pioneered factories should under no circumstances be turned into permanent Government enterprise. Instances are not wanting where Native States, with greater resources, authority and facility, have started trading, have put other private concerns into unfavourable competing position, and have thus deprived their subjects of any share in those particular industries.

We are not in a position to say whether the co-operative movement has been successful or not. In a country like India the progress of any such novel movement, however beneficial, is bound to be slow on account of the illiteracy of the masses. Any movement for the improvement of masses set on foot without any genuine corresponding attempt made to educate the masses is, in our opinion, like putting the cart before the horse. We consider it wrong to attribute the slow progress, if any, to the drinking habit of the people as the vice has not assumed same magnitude in India as in the West.

Limits to Government aid.

There should be no limitation on Government aid to new or existing industrial concerns which come in competition with new or existing private enterprises in India. In such cases the same sort of help that is given if asked for should be given to all other concerns, that fulfil the same requirements. Preference should be given to existing enterprises over new enterprises.

It is but natural that commercial or industrial interests of India do and will come in conflict with the interests of any foreign country whether within or without the Empire. India having no or very little voice in deciding questions that affect its own interests therefore suffers. Under the circumstances while deciding on this question we strongly believe that external conditions and circumstances should not be taken into consideration and the question must be solved solely in the interests of India alone.

We favour the establishment of Industrial Banks or a Central Industrial Bank. Government should assist financially such bank or banks.

### *II.—Technical aid to industries.*

We are not aware of any elaborate official, technical or scientific organization in the Bombay Presidency. We have the R. C. Technical Institute in Ahmedabad. It is under Government management now. Most of the persons who join that institute are those who have not done well in English secondary schools. They are principally drawn from the classes other than the classes that work on machines and become jobbers. Their training, bringing up, mode of living, and calibre do not as a rule qualify them for the mode of life for which they want to get trained. In our opinion, the institute has so far been a failure. On the other hand, we believe that the Victoria Jubilee Technical Institute in Bombay has done better. As far as we know, the young persons who joined that institute are not those who have failed in other walks of life. Some of them join that institute after having done some practical work in factories. Though the result of this institute may not be what we may wish them to be, still we believe on the whole it has done quite well.

If Government wish to give any grant-in-aid for technical or scientific research, it should be given to approved technical or scientific institutes, and to such private concerns where no attempt will be made to make use of the grant in order only to serve their own aims, and who will give publicity to the results and methods. Such work should be open to the public.

Research work.

Research work should be undertaken by Government and experts should be employed to carry on the research work. These experts should give advice when asked for, and under special circumstances their services should be lent to Provincial Governments who should be at liberty to place them at the disposal of private joint stock companies. It is difficult to lay down the exact scale on which fees should be levied from parties who make use of the services of the experts. The results of work undertaken by experts either in Government laboratories or factories must be published in all cases.

Research work, if any, in the textile industry undertaken by Government is not known to us. For industries or other processes for which prospects of success in this country are fair, but which cannot be started for want of skilled labour and for general information and knowledge about plant and process, we think that demonstration factories or a demonstration of a particular process would serve a very useful purpose. In case of existing industries there may be some processes by the adoption of which industries may benefit. If such important processes are not adopted by the existing factories, steps should be taken to demonstrate such of them.

For the development of industries in India a central department of Imperial research is absolutely necessary. The immediate aim should be to have it and to make it completely self-contained. Only till such time that the Indian department of research is quite complete, some of the research work should be done in foreign countries where better facilities for work may be found to exist.

There is no objection to colleges and science institutes being asked to undertake research work.

An extensive forest, mineral and industrial survey of India is absolutely necessary. The result of the survey should be published.

## III.—Assistance in marketing prod

Commercial museums.

We are in favour of commercial museums. These should be kept up-to-date. The final aim should be to have one museum at least in each important district town where indigenous, if any, and foreign articles that compete with them should be shown. We recommend an industrial survey of the country, and from that survey it could be easily ascertained what articles could be made in a particular district. In such museums foreign articles, the like of which could be made in that particular district, should also be shown. Meanwhile it is believed that the marketing of indigenous products can most effectively be advanced by the opening up of sale agencies on the lines of "Mysore Arts and Crafts" at Bangalore, and the "Victoria Memorial Institute" at Madras and the opening in suitable centres of branches of a central industrial or a similar organization.

Exhibitions

We believe industrial exhibitions will prove very useful. Government should encourage holding of such exhibitions.

Trade repres tives.

There should be trade representatives for India in Great Britain and the Colonies and Indian Trade Attachés to British Consulates in foreign countries. We believe that these officers should be Indians.

Government pat age.

Government should follow the policy of buying Indian-made goods only for purposes of State in India, even if the quality be not so superior and the cost slightly high in the beginning. Preference should be given to Indian firms working with Indian capital. For articles that are not made in India, Government should endeavour to have them made in the country by guaranteeing the purchase of the outturn of the factories that may be started for the manufacture of those articles. In spite of the above guarantee if factories are not started in the country, Government should pioneer factories for the manufacture of those articles, provided the articles be such as can be made in India. For articles that cannot possibly be made in this country and for the manufacture of which there is no scope, foreign articles may be purchased. If, on the other hand, Government lay down that price for price and quality for quality Indian goods should be given preference over foreign goods, Indian industries will never get the encouragement that they are entitled to from the Government, and which every country has a right to demand from its Government.

Government should publish a list periodically of their requirements. Samples should be kept on view. Prices should be given including of packing and freight. There should be a Director General of Stores in India who should purchase all the stores. He should decide whether to purchase particular stores in or out of India.

Arrangement should be made for giving of opinion on sample of indigenous articles if they are of sufficiently high standard to meet the Government standard of quality.

### IV.—*Other forms of Government aid to industries.*

Supply of raw n rials.

Government should give every facility for the extraction of raw materials for industrial purposes in the country. During the experimental stage Government should make nominal or no charge. When an industry gets established, Government should in some cases fix royalty on a gradually increasing scale, bearing in mind the then prices of foreign goods.

Land policy.

The land policy of our district does not impose any serious check on industrial development, the conversion of agricultural into non-agricultural lands being allowed to be accomplished by Government. But the great delay in obtaining the necessary permission from the municipality and Government is a serious impediment to speedy work. The managers of industrial concerns are not as familiar as Government officials with the rules laid down by Government. Unnecessary hardship and consequent loss is oftentimes experienced by industrial concern on account of the insistence of rigid adherence to rules on the part of the Government official We therefore firmly believe that the Government rules should be followed more in spirit tha in letter.

We do not favour acquisition of land by Government for industrial purposes. We, howeve see no objection to waste or forest land being acquired by Government for industrial purpos under special circumstances. If it is found that a particular industry cannot be develope unless adjoining big tracts of land are made available for the industry, we believe that as special case only such lands should be acquired as can be replaced, *e.g.*, the person from who the land is acquired should be able to get equally good land at the same cost as the compens tion he gets, and that, too, not at a very great distance. Government officials with whom th power of acquiring land will rest may be induced by lame arguments to believe that for th development of a particular industry acquisition of a particular land through Governme agency is necessary, and we believe great injustice will thereby be done to the existing lan holders. Moreover, if the profits are to go to a private company or person, there is no reaso why Government should go out of its way to help it, and in so doing do injustice to many. I however, Government do decide on acquiring land which cannot be replaced, we strongly ho to the opinion that the compensation should not be fixed on the market value of the land. The gross earning, and not the nett earning, of the land should be taken, and twenty times the earning should be paid to the owner of the land.

We believe that Government should give every facility to industrial concerns by giving them Government land whenever possible and available.

If the local Governments have no power to sell or lease land to joint stock companies, they should be given such powers.

We strongly favour free use of river or canal water being given to industrial concerns in a way which would not injure agriculture and pollute the water.

### *V.—The training of labour and supervision.*

General.

We are firmly of opinion that the industrial development of this country would have been much more if the masses were more literate than what they are at present. The industrial development of this country is, as is the case with every country, largely bound up with its educational progress. Primary education is bound to play an important part in stimulating labourers' intelligence and inculcating habits of discipline and self-restraint. It will also foster the desire for better living, and increase of wants in the right direction must have a tendency to increase the efficiency. For the fullest industrial development of India, free and compulsory education at the earliest day is absolutely necessary. Very little or no attempt has been made to improve the amenities of life of labourers. Night schools for adults and day schools for boys have been tried by mills, but without much success.

In order that the heads of departments in factories may be quite efficient, it is necessary that they should rise step by step from the bottom of the ladder. On the other hand, in India the heads of departments are drawn from a class distinct from the working class. All that our workmen aspire to be is to be jobbers of departments. The jobber, unless he is literate, cannot become an assistant or head of a department. The departmental heads therefore have not the necessary working experience, and as such lack the knowledge of the working difficulties of workmen. In order that workmen may be able to become departmental heads they must be fairly literate to get theoretical knowledge of the various processes. This can only be done by their receiving training at night schools. But for obvious reasons night schools have not been successful. Attempts have been made at getting proper attendance at such schools. But unless education is made free and compulsory, we believe that education amongst work-people will not spread. To begin with, there must be a number of schools in different localities, and arrangements should be made for the housing of schools. The teachers should take a keen interest in the welfare of the workpeople and must have sympathy with the disabilities of the workmen, and such steps should be taken as would induce them to go to schools themselves and to send their children also to schools. Proper arrangement should be made for the inspection of schools, and we believe that only such men as have intimate knowledge of the mode of life and thinking of workmen should be appointed inspectors. Technical education should be given side by side with the elementary education.

Training of supervising staff.

With regard to training abroad of managers and supervisors, we believe that till such time as the Government have to make purchases of Government stores in foreign countries, purchases should be made only from such firms as are willing to train a number of Indians at their works. It is common to see Japanese receiving practical training in factories and works in England, and it is a matter of surprise that our Government have been able to make little or no arrangement of the kind for Indians, though India is within the Empire.

Training of managers and supervisors should be undertaken in demonstration and pioneer factories. Industries that receive State aid should be made to train technical experts. There should, however, be exceptions to the rule; and it is difficult to lay down any hard and fast lines of policy.

Mechanical engineers.

The standard of examination for mechanical engineers should be uniform all throughout India.

### *VI.—General Official Administration and Organization.*

We are of opinion that the research and non-executive side of the department should be imperial while the executive side should be provincial.

There should be in each presidency an Industrial Board with a director as its Secretary.

Imperial Department of Industrial Research.

There should be a Director-General; a number of experts should be employed who should tour annually for a few months in order to acquaint themselves with conditions prevailing in industrial centres. In addition to laboratories they should be in charge of small demonstration plants where Indians should be trained as supervisors and managers.

We are of opinion that a committee consisting of the representatives of local Indian industries should be formed, and all industrial and commercial subjects that are referred to Government or on which Government want opinion should be referred to it. The chairman of the committee should be elected by it. This committee should be given the power of suggesting names to Government from amongst which Government should appoint a Director of Industries. This director should be the Secretary of the executive officers of the committee. Should it be found necessary, his services must be dispensed with by Government on a requisition by at least three-fourths of the members of the committee present. It is not necessary that the director must be an official. Even if he is, as far as possible he should be an Indian.

The committee should go into sub-committee, when necessary. The committee should frame its own rules. The director should take his instructions from the committee, and he should be bound to act up to the committee's resolutions. He would be the chief industrial executive officer in the presidency, and as such should have the same status as the Secretaries to the Government. This board, among other things, would draw up the budget, the programme of work, and make recommendations to the Local Government or the Imperial Director-General on all applications for financial assistance or concessions.

The constitution of the board may be as follows :—

2 representatives of the Bombay Mill-owners' Association.
2 representatives of the Ahmedabad Mill-owners' Association.
1 representative of the European Chamber of Commerce.
1 representative of the Indian Chamber of Commerce.
Secretary and Treasurer of the Bank of Bombay or the Industrial Bank.
Director of Agriculture.
Registrar of Co-operative Credit Societies.
Nominee of the Port Trust.
1 representative of the Piece-goods Association.
1 representative of the Karachi European Merchants.
1 representative of the Karachi Indian Merchants.

General

We favour the establishment of a central bureau of industrial information. Directors and members of Presidency Boards should meet annually in a conference.

*VII.—Organization of Technical and Scientific Departments of Government.*

Imperial Department.

There are two Government aided institutions established for technical and scientific purposes. These are the R. C. Technical Institute under complete Government management and the M. R. Science Institute which is also under Government management. The latter has been working since the last two to three years, and as far as we are aware no industrial research work or experiments are allowed to be done in the laboratories nor are men other than students allowed to make use of laboratories on payment of fees and on undertaking to replace all the breakages and to pay for all the chemicals and out of pocket expenses to the institute.

Study abroad.

We favour the establishment of an Imperial Department of Industrial Research. This department should employ first class experts, some of whom may have to be recruited from outside India, for at least some time to come. Qualifications being same, we believe preference should be given to Indians. In order that self-respecting Indians might be willing to take up the post, there should not be any difference between the salaries and status of Indians and foreign experts. Best persons should only be got for the purpose. For industries such as the textiles, leather, bobbin-making, experts should be got from England. But for agriculture, silk, match-making, we fail to see why Englishmen should be engaged. For agriculture perhaps the best man available would be in America or Canada and for matches in Sweden or Japan. Under special circumstances experts should be loaned to Provincial Governments.

Indians should be encouraged to study abroad the conditions or methods of other countries. Government scholarships are given to Indians at the present time, but if the results are not very encouraging, we attribute it to (1) the persons selected as scholars have in many cases no training in industries for the study of which they are given scholarships, (2) that the scholarships are sometimes given for industries for the development of which there is no immediate field in the country, (3) the students get few or no facilities to acquire good practical knowledge by working in good factories abroad. We, therefore, suggest that the proposed Presidency Board of Commerce and Industry should be allowed to select the scholars and that preference should be given to men who are already in the line.

We favour the establishment of a school of economics in each presidency town on the lines of the London School of Economics.

Government experts should be made to spend a portion of their furlough in foreign countries in order that they may be able to keep themselves up to date.

Reference libraries.

Scientific and technical libraries should be established in suitable centres and the existing and the new libraries should be opened to the public. Municipalities and local boards, instead of trying to tax the industrial concerns as much as they can, should encourage industrial development by adoption of liberal policy.

### IX.—*Other forms of Government Action and Organization.*

Prevention of adulteration.

In our opinion legislation should provide against the adulteration of such articles as drugs, oil, cotton, sizing ingredients, colours and chemicals.

The mixing of inferior quality of cotton with higher quality is very detrimental to the textile industry of the country. It is also damaging the reputation of the Indian cotton in foreign markets. On account of the seeds getting mixed the crops suffer in quality, and if this is allowed to go on, it will be very difficult to get uniform quality of cotton in India. One method of stopping mixture of various grades of cotton would be to penalise carrying cotton bales from one district to another and to stop supplying wagons for cotton bales to be carried from one district to another. Legislation and enforcement of that legislation is necessary to prevent water being sprinkled on cotton in order to increase its weight.

Railway transport.

Facilities of transport by railway are not at all satisfactory and there is a continual shortage of wagons. When Government give monopolies it ought to see that the monopoly sufficiently supplies the public demands. The fixing of rates is most unjust, and no consideration is given to the trades. The rates are fixed in a manner which would benefit the company. Attempt should be made by the company to allow the internal ports to develop. Attempts have been made several times to send the goods by sea from Broach. But the railway company has fixed such rates between Ahmedabad and Broach that it does not pay the mills so well to send goods by sea. (See Appendix A for railway rates.) We strongly recommend the appointment of a special committee to go into the question of railway rates, and that there should be a permanent Board of Arbitration to hear all the complaints with regard to the railway administration and give decision which should be binding on the railway company. There should be adequate Indian trade representation on the committee and the board. State railway companies should mainly exist for the benefit of this country. The companies may have their responsibilities to their shareholders, but as they hold the monopolies, Government should see that interests of the many are not made subordinate to interests of the few. State-management of railways is essential. It would be in the interest of the railways themselves to develop the internal traffic of the country to the same extent to which they have facilitated the import and export trade of the country.

### X.—*General.*

There is unfortunately a general belief in the minds of the Indian commercial community and the public at large that in deciding questions concerning the trade of India, Indian interests are not considered in the way that they should be. There is a lot that could be said in support of this belief, but as fiscal questions do not fall within the scope of the commission, we refrain from going into them. We may be, however, permitted to mention that we are firmly convinced that excise duty was imposed not for the protection of the handlooms, as is often said, but to safeguard the interests of Lancashire. The recent agitation of Lancashire men at the time of increase in the import duty is a conclusive argument in support of our belief. We therefore believe that Indian interests should not be made subordinate to the interests of any country, whether within or without the Empire, and the trade policy of India should be fixed in a manner suited to its best interests.

There is also a belief that when Government officials want to unjustly punish or take to task a particular person they attempt to put difficulties in the way of his business. There is no reason why this belief should not be corrected in a convincing and suitable manner.

Though we believe the officer or body in charge of making Government purchases does not intentionally show any preference to European concerns, we cannot help thinking that the European concerns practically hold the monopoly. This is, to a certain extent, natural. We attribute it to two causes—(1) the purchasing officers being mostly Europeans, they come more in touch with European traders than Indian traders ; (2) that no, or very little, attempt is made to encourage concerns other than those who receive Government contracts to supply Government requirements. This also applies to Government concessions such as mineral, railway, etc. Even in case Government were to instruct their purchasing agency to give every encouragement to Indian concerns we believe that unless the control is transferred to Indian officers, Indian traders will not receive equal treatment. We are of opinion that Government should hold that India must be first for Indians. We have already referred to the railway policy. We go to the extent of believing that unless the railway policy is altered, the excise duty repealed, and equal treatment given to Indian traders, they will not have the same faith in British justice as they should have for the good of the country and the Empire.

## APPENDIX A.

### *Piece Goods—Class II (Ry. Tariff).*

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| From | To | Distance. Miles. | Rate per Maund. | Pies per Mile per Maund. |
| (*a*) Ahmedabad .. | Broach .. | 106 | 0 7 10 | ·88 |
| (*b*) Broach .. | Ahmedabad .. | 106 | 0 4 11 | ·55 |
| (*c*) Bombay .. | Delhi .. | 862 | 2 1 1 | ·46 |
| (*d*) Do. .. | Wadhwan .. | 388 | 0 14 2 | ·43 |

Broach is a seaport, and Ahmedabad Mills could despatch *viâ* sea route their piece goods to Calcutta, Western Coast and other ports through the port of Broach. The Railway Company has fixed a special rate of ·88 pies per mile per maund for piece goods from Ahmedabad to Broach; while there being no goods coming to Ahmedabad through this port the rate for the same goods is ·55 pie per mile per maund from Broach to Ahmedabad. Then again Railway Companies usually charge lower rates for larger distances, but here is a case quite the reverse of it. Wadhwan is 388 miles from Bombay while Delhi 862 miles, nearly 2¼ times longer distance than Wadhwan. Still consignments for Delhi are charged at ·46 pie per mile per maund, while those for Wadhwan are charged at only ·43 pie per mile, evidently the object being to stop the possible development of the Bhavnagar Port. Similar cases can be cited for grain and other cereals. Such reduced rates while lowering the earnings of Railways practically stop any possibility of developing coasting trade, thus tightening the grip of Railway monopolies.

ORAL EVIDENCE, 27TH NOVEMBER 1917.

THE AHMEDABAD MILLOWNERS' ASSOCIATION *were represented by* MESSRS. SHETH MANGALDAS G. PAREKH AND AMBALAL SARABHAI.

### SECTION I.

*Hon'ble Sir Fazulbhoy Currimbhoy.—Q.* Do you think that an industrial bank will help industries ?—*Mr. M. G. Parekh.—A.* Yes.

*Q.* In what way ? Have you got any scheme as to how the industrial bank should be financed and what aid Government should give ?—*A.* Government should assist the industrial bank by giving long loans.

*Q.* Long loans for more than a year ?—*A.* Yes, at reduced rates of interest.

*Q.* On what security, goods and machinery ?—*A.* According to circumstances.

*Q.* Are you in favour of advancing money on the machinery and the building ?—*A.* In certain cases.

*Q.* After the Government expert's decision is taken ?—*A.* Yes.

*Q.* Do you think that such a bank should be a Government bank, or should Government give guarantee and the capital be subscribed by private people ?—*A.* I think if the Government starts the bank it is all right, but if Government does not, then private persons should start a bank.

*Q.* How should they start ?—*A.* By putting in their own money.

*Q.* That is, helping themselves ?—*A.* Yes. I think that if private parties float companies and Government guarantees interest and dividend that will be better.

*Q.* Will private capital be forthcoming ?—*A.* Yes.

*President.—Q.* You are representing the views of your Association ?—*A.* Yes.

*Mr. C. E. Low.—Q.* Is it not the case that in many places there are too many cotton gins even for the maximum area grown or the maximum amount of cotton produced ?—*Mr. A. Sarabhai.—A.* There are some places, not many—at two or three places.

*Q.* That is, in Gujarat ?—*A.* Yes.

*Q.* We have also had evidence in Madras that the rice milling industry has been very largely overdone there and some gentleman complained very bitterly of having been led to start these rice milling industries, after which a number of other people came along and started more rice mills than there was rice to mill.—*A.* We have no knowledge about it.

*Q.* Do you object on principle to Government legislation on the subject or do you think merely that it is impracticable ?—*A.* For stopping congestion of trade !

*Q.* For stopping the overdoing of an industry.—*A.* I am not in favour of that.

*Q.* You object to it on principle ?—*A.* Yes.

*Q.* You do not think that this is a kind of thing that the Government should legislate about ?—*A.* I do not think it is advisable for Government to make any sort of legislation to stop having too many factories.

*Q.* Having more ginning factories than there is cotton ?—*A.* Sometimes the profit is so much that all ginning factories are working too.

*Q.* Then you leave it to the trade to settle itself ?—*A.* I think so.

*Q.* Do they work by means of combines in Gujarat ?—*A.* Yes.

*Q.* And sometimes if there are six gins two work and the remaining four are idle ?—*A.* They do so.

*Q.* Do you think that money should be locked up in those gins when it may be put into something more useful ?—*A.* People must be trained or certain things must be done. I am not in favour of legislation at least.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* In the beginning, on the railway line, there were ginning and pressing factories and later on when they thought there was competition on the railway lines they went into the interior and started factories there also ?—*A.* Yes.

*Q.* Can you tell us what is the general profit on the ginning and pressing factories at the lowest ?—*A.* 25 per cent.

*Q.* Do they get so much ?—*A.* Sometimes.

*Q.* If they are in the pool ?—*A.* Generally 8 or 10 per cent.

*Q.* Have the Ahmedabad mills their own gins ?—*A.* Two or three mills have their own ginning mills attached, outside the mills.

*Q.* Outside the mills some of the millowners have got ginning factories, but supposing they buy cotton from Navsari they have not got their own ginning factories ?—*A.* They have not their own, but their agents have theirs.

*Q.* The agents make profit on that and give cotton to the mills ?—*A.* That is only in one or two cases.

*Q.* But generally upcountry many mills have got their own gins at different centres.—*A.* That is not the case. They buy cotton from the districts and they buy it because they want it. We buy ready cotton mostly. We do not buy kapas and then have it ginned.

*Q.* In the pools have you got to pay a higher rate ?—*A.* We have to pay according to circumstances.

*Mr. G. A. Thomas.*—*Q.* You say "Government should supply expert advice and expert information, make preliminary local inquiries and give financial and other assistance." In fact, Government should take all the steps necessary for the starting of industries and the capitalist will simply wait with his mouth wide open for the ripe fruit to drop into it ?—*A.* It is not for all the industries.

*Q.* What industries do you exclude ?—*A.* Industries that do not require pioneering and for the starting of which private capitalists or companies are ready.

*Q.* Then Government aid is not required for all industries ?—*A.* Yes. Only such industries in respect of which expert advice is not available in the country or the particular information required is not available.

*Q.* When there is any doubt about the success of any particular industry Government should undertake the whole risk of the industry proving a failure ?—*A.* Yes.

*Q.* Do you think that is fair ?—*A.* Yes, it is for the benefit of the country.

*Q.* Do you think that it is fair to the tax payer that his money should be used by Government for these purposes ?—*A.* Government will have experts. They will start such industries as will have a chance of success. Such things will be few. In many cases they will be a success. If Government after making preliminary inquiries think that an industry should be started it will be started.

*Q.* You say that the factory should be closed when the Government finds no scope for the industry. Is not that putting the cart before the horse. Should not Government first satisfy themselves whether there is scope for an industry and then start the factory ?—*Mr. M. G. Parekh.*—*A.* "When capital is shy for any industry and when chances of success are not quite certain." In my opinion the Government should take the initiative only.

*Q.* You say "The pioneered factory should be closed only when it is conclusively proved that in spite of every attempt made to make it a success the working has not been successful on account of there being no scope in the country for the particular industry ?"—*A.* Read the sentence before that, "When the capital is shy for any industry and when chances of success are not quite certain."

*Q.* What do you mean by "no scope in the country for the particular industry?"—*A.* There may be some industries that cannot be taken up for want of raw material, and Government will make inquiries.

*Q.* First of all, Government should be satisfied whether there is any scope for the industry, then start a factory and show how it can be developed ?—*A.* Yes.

*Q.* They cannot set up a factory all at once ?—*A.* Then, after that, if there is scope it must be handed over—

*Q.* Under what conditions should Government hand over these factories to capitalists ? You say "The pioneered factories should be handed over to private capitalists or companies, etc." On what terms should they take over the factory from Government ?—*Mr. A. Sarabhai.*—*A.* Either paying cash or floating capital, issuing shares.

*Q.* Should Government only recover the cost of the concern, or should they get a share in the profits also ?—*A.* The cost of the concern. That will depend on how the industry has succeeded, and the paying capacity of the concern. Supposing the Government spent five lakhs, three lakhs on plant and building and two lakhs on preliminary inquiries, if the industry is so paying that they can get five lakhs, they get it. Every question must be decided on its merits.

*Q.* Ought they not to recover the whole of the expenditure they have incurred on the pioneer factory ?—*A.* That will depend on the earning capacity of the concern. The capitalist will pay if it is paying.

*Q.* Should he pay cash down, or may it be spread over a number of years ?—*A.* Each case must be decided on its own merits.

*Q.* Are the Government to auction it or invite tenders or what ? What is the fair way of disposing of it ?—*A.* They can invite tenders.

*Q. President.*—The point of difficulty is obviously when the Government have proved an industry to be successful there will naturally be a lot of claims put forward for the privilege of carrying on the Government work. Can you suggest to us some way by which Government should be guided in selecting the company or the person or the association of people to carry it on ?—*A.* It will be given to the man who pays the biggest amount. The Government can invite tenders.

*Q.* Don't you think that it will lead to an almost immediate failure ? People will think that it is going to be a satisfactory industry because the Government have proved it to be so, and if you invite tenders and accept the highest tender the chances are that the tender will be for such an amount as to bring about the downfall of the company at once from over-capitalization.—*A.* If it is not so, there will be partiality, and it would not be fair to the public.

*Q.* We want to know whether you have any suggestion to make.—*A.* Tenders will be invited and the thing given to the highest tenderer.

*Q.* And Government should accept the highest tender ?—*A.* It depends on the circumstances.

*Q.* If the Government do not accept the highest tender they must have some means of deciding who should have it.—*A.* There will not be open auction, but it will be given to the highest bidder by tender.

*Mr. A. Chatterton.*—*Q.* Supposing the Government pioneered an industry successfully would you agree that they should act as a company promoter and issue shares to the general public, and as company managers do, appoint a director to run it in the first instance, and thus gradually convert it into a purely private concern ?—*A.* No.

*Q.* Why not ?—*A.* Then Government would have to issue shares, and there would not be proper management and no one would take particular interest.

*Q.* You would make it essential that it should be handed over to some individual or individual concern ?—*Q.* Yes.

*Mr. G. A. Thomas.*—*Q.* You say "We consider it wrong to attribute the slow progress, if any, to the drinking habit of the people as the vice has not assumed the same magnitude in India as in the West." Have you got any comparative figures as to drinking in the West and in India ?—*A.* We know that.

*Q.* Is it a well known fact that drink is worse in the West than it is in India ?—*A.* Yes.

*Q.* What is your authority for that statement ?—*A.* We believe it to be so.

*Q.* By whom is the slow progress attributed to the drinking habit of the people ?—*A.* We are talking of the co-operative movement.

*Q.* I have not seen it stated anywhere. You say "It is wrong to attribute, etc." It means that certain people do so.—*A.* If they do we believe it is wrong.

*Q*. Do any people do so ?—*A*. We do not know.

*Q*. What is the good of making a statement like that ? Is it the common idea ?—*A*. Some people do believe that.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q*. You say " Pioneered factories should under no circumstances be turned into permanent Government enterprises." Supposing the Government started a certain industry and developed it to a certain stage, they might later on want to develop it to a still higher stage. Do you think under those circumstances the industry should be permitted to remain in the hands of the Government ?—*A*. They should show only the processes as a demonstration factory.

*Q*. In your factories, when you invite tenders for certain things you do not give to the highest tenderer if he is not reliable but you generally give to the approved tenderer ?—*A*. If we are selling we give to the highest bidder provided the money is coming.

*Q*. Not the highest but the approved ?—*A*. He must be solvent.

*Q*. That is to an approved party. You do not bind yourself to give to the highest bidder ? —*A*. No, to this financially approved party.

*Q*. And when you are building a factory you accept the lowest tender of an approved party ?—*A*. Financially approved party.

*Q*. In the case of pioneer factory the Government should invite tenders and if the highest tenderer is not strong enough to carry on that factory successfully over which the Government has spent a lot of money, you do not want that that factory should go into that man's hands and prove a failure. You would want the approved party to be given preference among the tenderers ?—*A*. If the party is quite good to pay the amount.

*Q*. But if he does not manage the concern well ?—*A*. Then it will change hands.

*Q*. Then what becomes of the Government success, and public confidence and the large sum of money that Government has invested ?—*A*. If it does not pay, it is becuase of the management.

*Q*. Supposing the pioneer factory which is successful goes into a private man's hands who is the highest bidder and the party does not work it successfully, don't you think.—*A*. Another concern of a similar nature will come into existence.

*Q*. And the factory will change hands ?—*A*. Yes.

*Q*. What will be the confidence of the people in that industry ? People will say the Government pioneered it successfully and managed it well and now it has come to grief. Don't you think that it should be given to the approved party ?—*A*. This is one danger. The other danger is partiality. Which is less ?

*Q*. The success of this factory vanishes, the demonstration and money spent on it is gone, it goes into another's hands and goes into liquidation and that industry is lost.—*A*. In determining the approved person there is the danger of partiality. You cannot lay down a hard and fast rule for that.

*Q*. There is the Government.—*A*. Of the two things, giving to the highest bidder is better.

*Q*. In order that the industry should change hands ?—*A*. We do not say that, and even if it does, it does not matter.

*Q*. It does not matter ?—*A*. The party who comes forward to pay a higher amount will be competent to manage the concern. That is our belief.

*Q*. Suppose the party is not good. Then what do you think would happen ?—*A*. If the industry is successfully pioneered, then the people will have confidence in it, and they won't wait for the results of the other man, but will start other factories.

*Q*. About the drinking habit of the people, have you any experience of the Bombay mill-hands ?—*A*. No.

*Q*. You say " Instances are not wanting where Native States, with greater resources, authority and facility, have started trading, have put other private concern into unfavourable position, and have thus deprived their subjects of any share in those particular industries."—*A*. That is true. The Morvi State, the Limbdi State, etc., have their own ginning factories and pressing factories and they charge exorbitant rates.

*Q*. They take away money from the cultivators by charging heavy rates for the gins ?—*A*. Yes, and from the merchants, too.

*Q*. That is only in the Native States and not in the British India ?—*A*. We have stated there clearly Native States.

*Q*. What instances ?—*A*. Cotton presses and gins.

*Q*. What has that to do with British India ?—*A*. We say that Government should not become manufacturers or traders because we have seen in Native States where they have done that, they have deprived their subjects of any share in that particular industry.

*Q.* Then you say that if the Government finance a concern the director appointed by the Government must have no powers of veto.—*A.* Yes.

*Q.* Supposing the Government think they are financing a risky concern they must have a voice ?—*A.* The director should submit a report to the Government. There will be certain conditions attached to the financial grant by Government.

*Q.* Do you wish that the Government should subscribe a part of the capital ?—*A.* We have recommended all the eight methods suggested in Question No. 5, Section (1).

*Q.* Do you know anything about the co-operative movement, whether it is successful or not ?—*A.* No.

*Q.* Do you think it will be helping the industries if the co-operative movement is started ?—*A.* We do not know much about it. It may help the cottage industries a good deal.

*Mr. C. E. Low.*—*Q.* You say "Preference should be given to existing enterprises over new enterprises." Is that your considered opinion ?—*A.* Yes.

*Q.* Supposing you get a new enterprise coming forward, such as, say, the manufacture of sulphuric acid in this country which is of vital necessity to Indian industries, you think that the present cotton industry should have preference over that ?—*A.* Industry of the same nature. That is what we mean.

*Q.* It is not clear from your written evidence.—*A.* That is what we mean.

*Q.* You say "Government should assist financially such bank or banks." These banks would finance what ? Working capital of the industries or the capital outlay on the industries ?—*A.* The industrial bank should give long period loans, it can underwrite capital, buy up debentures or give long period loans to companies.

*Q.* It should provide block capital practically ?—*A.* Block or working capital.

*Q.* You want a particular kind of money for that purpose. Short-term deposits are of no use, and it would be dangerous to use them for such purposes ?—*A.* Yes.

*Q.* Where is the Government to get money for this purpose ?—*A.* From the Gold Standard Reserve Fund.

*Q.* They do not keep it just for the fun of the thing.—*A.* They use it for exchange purposes.

*Q.* They have got it in liquid form.—*A.* It is invested in sterling security in London at present.

*Q.* It is at present liquid. Supposing it was invested in an industrial bank and there was a slump in exchange and Government wished to help, what would it do ? Would you sell up the industry ?—*A.* What I contend is that the Government can help the exchange and also the banks. We do not say that the whole of the amount should be invested in the industrial bank here.

*Q.* You are assuming that the Government is keeping the Gold Standard Reserve more than what is necessary.—*A.* No. But we think that an Industrial bank is absolutely necessary.

*Q.* So is the Gold Standard Reserve.—*A.* The Gold Standard Reserve is necessary, and they are using that money for facilitating exchange now, but if a part of that is invested in India in financing the industrial bank they may not be able to give the same assistance to exchange as it is doing at present and then exchange will suffer to some extent. But in the other case industry will suffer. There are also the treasury balances.

*Q.* They are also kept for special purposes.—*A.* We think that this is of such importance that something must be done. We have simply made the suggestion for what it is worth.

*Q.* But you propose to use the money which has to be kept liquid in an unliquid form. The bank does not take current deposits for this purpose, you have yourself said. The bank would use debentures or share capital, and I am rather surprised that you do not suggest that Government should raise special loans or things of that sort for this purpose.—*A.* If they raise special loans, the rate of interest will be higher than the industrial bank can afford to pay, and we thought that it would not be right to ask the Government to raise special loans for the industrial bank and suffer the difference in interest. In Japan the Yokohama Specie Bank received Government help.

*Q.* Does the Yokohama Specie Bank lock up any money in industrial concerns ?—*A.* They gave it to other banks which were doing such business.

*Q.* We could not get any information about the local banks in Japan. We should be very glad if you could get more definite information on the point.—*A.* We say that the industrial bank is necessary and some sort of financial aid should be given to the bank by the Government. In what manner to give it and how to give it is the question. In our opinion if a portion of the Gold Standard Reserve can be given to this, it will assist the bank materially. But if

Government think that they cannot give from that Reserve but from other funds it is also welcome.

*Q.* If the bank is going to invest money in industrial enterprises would it not require to be advised by experts ?—*A.* We suggest that there should be Government experts and they should be available to the bank.

*Q.* But you realize that the industrial bank should require a fairly wide basis of industries to finance because if it confines itself to one industry and if that industry suffers the position would be bad.—*A.* We have not worked out the details. We think the industrial bank is actually necessary and some sort of financial assistance is necessary.

*Hon'ble Sir R. N. Mookerjee.*—*Q.* In answer to Sir Fazulbhoy you said that the Government director should not have the power of veto. Have you any experience of how the guaranteed railways in which Government directors have the power of veto work ?—*A.* I do not know. If Government give financial aid they should lay down a rule that if the company loses so much it should be wound up. If the company broke that agreement the Government could come along and ask the company to act according to that agreement.

*Q.* You prefer that the Government should fix rules according to which the company ought to work. The company itself should not make rules for its management and work ?—*A.* We are against the Government having the power of veto.

*Q.* Can you cite any instances where Government directors have vetoed the decisions of the directors without strong reason ?—*A.* They may not have done it so far, but it is quite possible that they may do it. Whenever there is anything serious happening the Government director may report to the Government but he must not have the power of veto.

*Q.* But it might become very serious by the time the report reaches the Government and orders are passed.—*A.* The Government director should be there. If he has power to veto the decisions of the directors, then practically they have no power.

*Q.* There are many guaranteed railway companies where a Government director has got the power of veto.—*A.* They may not have exercised it so far, but we object to it on principle.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* If you do not want the Government director to have any power of veto, then it would be better not to have any Government director at all ?—*A.* We prefer to have a Government director with equal powers to the other directors, but in cases of emergency he may report to the Government and it must be so stated in the agreement.

*Q.* He must see that the agreement is followed ?—*A.* Yes.

*Q.* Supposing he does not stop the thing, it will go to worse ?—*A.* He must have power to stop it.

*Q.* You say "India having no or very little voice in deciding questions that affect its own interests therefore suffers."—*A.* For instance there is recruitment of labour for foreign countries, but we do not get any labour in Bombay. Then there is the excise duty on cotton goods.

*President.*—*Q.* What do you mean by saying "India having no or very little voice in deciding questions that affects its own interests therefore suffers" ?—*A.* In southern India, in Madras and other places there is a lot of labour available and if that labour was not going out of India it would be possible to get it for Bombay or Ahmedabad. We are very short of labour.

*Q.* You think that your labour supply is affected by the fact that a certain amount of labour emigrates ?—*A.* Yes. We cannot offer the same terms as the foreign countries.

*Q.* The terms that are offered to the labour that goes out of the country are favourable terms ?—*A.* The labourers think so.

*Q.* That has gone on for many years ?—*A.* Yes.

*Q.* And they still think so ?—*A.* I was in Madras and I made inquiries there and I found——

*Q.* They prefer to emigrate ?—*A.* I do not say that. Because they were going there, it was not possible to make any beginning to get them.

*Q.* That illustration does not convince us at all.—*A.* There is the other illustration of excise duty on cotton goods.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* Is not Madras labour working in Ahmedabad ?—*A.* Yes. We are getting some now. There are also many Madrassi weavers in Bombay. I have got in my own mills some Madrassis.

*Q.* Even though there is emigration to foreign countries you get some.

*President.*—*Q.* If each province is to have its own, say, in its management, Madras would not probably allow itself to be shorn of its labour. The Madras people would not allow their labour to go and settle in unhealthy chawls here. You must give up the labour illustration.—*A.* No. If there is surplus labour we shall get it here.

***Hon'ble Sir Fazulbhoy Currimbhoy.—Q.*** **What wages do your men get in the spinning department ?—*A.* Rs. 12 to 13.**

*Q.* And weaving ?—*A.* Rs. 20 to 35. There is not much difference between the rates in Bombay and in our place.

*Q.* Bombay is giving higher.—*A.* We are giving more than Bombay.

*President.—Q.* I do not think we have cleared up the last question about the Gold Standard Reserve, how it should be used for financing industrial undertaking.—*A.* We only suggest it. Some sort of financial aid must be given to banks.

*Q.* You realize that the Gold Standard Reserve is kept at the other end for making exchange stable.—*A.* We do not want the whole of it to be invested but only a portion.

*Q.* But Mr. Low has pointed out that so much is kept there as is necessary for the purpose. I presume you have not studied the financial question in such a way as to show how the Gold Standard Reserve could be utilized here.—*A.* We only suggest that.

*Q.* I am asking you that because you raise the question of its being invested at home. —*A.* I do not object to its being invested in London, but a portion of it may be used here in financing the industrial bank if Government cannot find other funds.

*Q.* You really want the industries to be financed but you are not prepared to give exactly the method by which Government should find the money ?—*A.* They should give some sort of assistance.

*Sir D. J. Tata.—Q.* Are you aware of an attempt made twenty years ago by the Millowners' Association to import labour from the United Provinces ? We were told that there was plenty of labour available there, and that it was possible to introduce it from there, and a certain number of people were brought down. Are you aware of this particular effort to bring labour down ?—*A.* Yes. The attempt was made by Mr. J. D. Tata.

*Q.* You remember our firm tried to bring the labour down and settle it ; and the result was that we could not get any of them to stay ; and all the money that was spent on trying to import labour was wasted and nothing came out of that experiment.—*A.* I do not think all of them went away. We have got some Madras labour in Ahmedabad.

*Q.* We experimented later through the Salvation Army to get labour and settle it on the land we gave them. But even that did not result in anything because the labour was so wanting in intelligence that we could not make it useful. Have you been more successful ?—*A.* We have succeeded. We have labour from Madras and United Privinces. In Bombay also there are Madrassi labourers.

### SECTION II.

*Sir F. H. Stewart.—Q.* With reference to the employment of experts by private companies you say that the results of work undertaken by experts either in Government laboratories or factories must be published in all cases. Do you think that it will be quite fair to the private company which may have gone to a considerable expense ?—*A.* The Government employs the expert and he does all the work in Government laboratories and Government pay for the work. If the private company does not want the results to be published they should employ their own expert.

*Q.* You do not think that they may be withheld perhaps for a limited period of time ?—*A.* No. They should be immediately published.

*Q.* Of course you would not mention the name of the private company ?—*A.* No. Only the result will be published whether it was successful or not.

*Mr. A. Chatterton.—Q.* Are there any problems in which your Association is interested on which it is desirable that research work should be taken up immediately ?—*A.* About the textile industry, chemicals can be made in this country, but there is not sufficient knowledge how to do it.

*Q.* Do you want new sources of supply of chemicals that you are using in the textile industry ?—*A.* Yes.

*Q.* Is that not a case of pioneering new industries ?—*A.* That is a question of research work to a certain extent.

*Q.* And you want to show the results of that research to the public at once ?—*A.* Yes.

*Mr. C. E. Low.—Q.* Speaking of the Victoria Technical Institute, you say " Though the results of this institute may not be what we may wish them to be, still we believe on the whole that it has done quite well." In what respects do you consider it is wanting and what is the remedy for that ?—*A* They have not got sufficient practical experience.

*Q.* Have you any idea before you for remedying that ?—*A.* We believe that if the workmen get trained for the higher posts of assistants and departmental heads they will make better heads of departments than the present heads who are drawn from a different class.

*Ahmedabad Mill-owners' Association.*

*Q.* The workmen should then have a certain amount of education given at some stage. Do you propose to give that ?—*A.* In the next section about the training of labour and supervision we have spoken about it.

*Q.* You say "If Government wish to give any grant-in-aid for technical or scientific institutes, etc." What particular position have you in view when you say that ?—*A.* As I have said about training just now, if Government want to give a grant and if a private company was willing to take the grant and make use of that money and make experiments for cloth printing and other things, the other people ought to know about them.

*Q.* By private concerns you mean private industrial concerns ?—*A.* Yes.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* What are the qualifications required for entrance into the Reformatory Civil Institute at Ahmedabad ?—*A.* 5th Standard. They have their own entrance examination. There is difficulty in getting students to go there.

*Q.* Do you accept lower standards also ?—*A.* Yes.

*Q.* And even if they do not know English well ?—*A.* Yes.

*Q.* And therefore this system is a failure ?—*A.* I do not know exactly what they are doing since the last six months. The Government have taken over the institute, and I do not know what they are doing now. I am speaking from my past experience.

*Q.* About research work and experts, do you want the experts to be imperial or provincial ?—*A.* Imperial.

*Q.* And they should be lent to the provinces when needs arise ?—*A.* Yes.

*Q.* Then you say "There is no objection to colleges and science institutes being asked to undertake research work." You do not object, but are you in favour of it ?—*A* There is the central institute where they will do all the work.

*Q.* Would you like the colleges to take up research work ?—*A.* The Director General should decide.

*Q.* What is your opinion ?—*A.* What we mean is this, supposing there is a man in a college who can do research work in a particular industry he should be given a chance to do it.

*Mr. G. A. Thomas.*—*Q.* Do you know why the Ahmedabad Technical Institute was taken over by the Government ?—*A.* Want of funds. That is my impression.

*Q.* Was it not due to the fact that the institute was badly managed ?—*A.* It was not badly managed. The students turned out were not quite good. The whole course was bad.

*Q.* You do not admit that the organization was bad ?—*A.* I cannot pass any opinion on that.

*Q.* You are on the board ?—*A.* I was on the board.

*Q.* Did you protest against its being taken over by Government ?—*A.* No.

*Q.* You say "A central department of imperial research is absolutely necessary. The immediate aim should be, etc." What do you mean by "immediate aim" ? Do you not rather mean as soon as possible, because you say later on "Only till such time that the Indian department of research is quite complete" ?—*A.* Yes.

*Q.* If an industry is more fully developed in some other part of the British Empire and that part of the British Empire has a large research institution carrying on research work in that branch, and you wanted to start a similar industry in this country would you not go to the institution in that part of the British Empire ?—*A.* If the research cannot be done in India, then only would I go there.

*Q.* You would prefer to have your own experts immediately ?—*A.* They may have some work done outside, but they should try to do it in India if possible.

*Q.* In every industry ?—*A.* India must be self-contained as far as possible.

*Q.* For every industry ?—*A.* No.

*Q.* For large industries peculiar to India ?—*A.* Yes Particularly if there are any industries peculiar to India.

*Q.* For which India is particularly suitable ?—*A.* Yes.

*Q.* You do not mean the smaller industries ?—*A.* No.

*Q.* Then you would have a research institution in India for them also ?—*A.* In the central research institute there will be some provision for research work of that character.

*Sir D. J. Tata.*—*Q.* You say in the third paragraph of that section : "Research work should be undertaken by Government and experts should be employed to carry on the research work." It means that the Government itself is to carry on research work ?—*A.* Yes.

*Q.* It is not anybody else's duty ?—*A.* May be.

*Q.* I admit that in the case of a pioneer industry or a new industry Government may be asked to carry on research work; but when an industry is flourishing and you make plenty of money in it, don't you think that the industry should try to carry on its own research work?—*A.* We are talking about new industries.

*Q.* You represent the Ahmedabad Millowners' Association. Don't you think that your Association should start its own research work?—*A.* We mean that the expert should be supplied and the research work may be carried on by the companies.

*Q.* Who is to pay for it?—*A.* The companies are to pay for it. We say "It is difficult to lay down the exact scale on which fees should be levied from parties who make use of the services of the experts."

*Q.* That is a different thing. Why should not the millowners themselves combine and start a research institute, where they can have experts of their own?—*A.* They must have a big laboratory.

*Q.* Are they not rich enough for that purpose?—*A.* Our view is that this Association should pay for the expert at the central institute to do the work in the laboratory there because there are greater facilities there.

*Q.* They have too many things to attend to. Is not this industry big enough to have its own institute?—*A.* Every industry should not have a research institute of its own. There should be a central institute where research can be carried on.

*Q.* That may be so for a small industry. But don't you think that the cotton industry is big enough?—*A.* We should prefer the experts doing the work at the Central Institute.

*Q.* Are you aware, and it has appeared in the papers, that one cotton firm in Manchester has laid aside £10,000 a year for five years for research work?—*A.* I do not think it is possible in India at the present stage.

*Q.* It simply means putting your hands into your pockets.—*A.* Better results will be had at the central institute.

*Q.* I suggest that the Bombay and Ahmedabad Millowners' Associations could combine.—*A.* If the Bombay Association were able to come to a decision themselves, then they might ask our Association.

## SECTION III.

*Mr. C. E. Low.*—*Q.* What particular products are your Association interested in marketing and in what countries?—*A.* Cloths particularly in foreign countries.

*Q.* There are some foreign countries where you never have a large trade. There are some others which you call more promising, and these are the places where you would have trade agents?—*A.* Just now we could send men to Basrah or the Persian Gulf.

*Q.* After the war you would presumably like some form of trade agency in Mesopotamia and elsewhere in Arabia?—*A.* It is very difficult to get information. Unless we send out our own representative there, it would be difficult to get any information and then our representative finds great difficulty in getting into touch with really good parties.

*Q.* Are not the consulates of much help?—*A.* I have never sent out a man myself, but I have written letters and tried to get information, but that has not been of much assistance to me.

*Q.* You do feel the practical need for trade agents in places like Mesopotamia?—*A.* Yes.

*Q.* Also in East Africa?—*A.* We have tried to send samples and other things, but it is very difficult unless we have got a man to give information, and it is very difficult to enter into business unless we send out our own representative.

*Q.* And such a man should be in touch with the people over here as well as the persons abroad, and it would be desirable for him to spend some time in India finding out the latest information about the products, etc., and then go back.—*A.* If he came here for about six months once in every three years it would be sufficient.

*Q.* You say he should be an Indian?—*A.* Yes.

The reason why we have put down that he should be an Indian is that he would be able to talk the language and keep into touch with the people and get information.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* You want an Indian so that he may push the Indian trade?—*A.* Yes. He would be able to keep in touch with the people and know the difficulties and other things. He would not be a man usually knowing English.

*Q.* An Englishman can come here and talk to us and we can get his report as to what is wanted and what is not.—*A.* If he were an Indian he would be able to get into touch with the people better than an Englishman, with the millowners and other merchants.

*Q.* They all know English. Do you think it would be useful if he came once in three years?—*A.* To begin with.

*Q.* Why not use the consulates? They are already in touch with the people there?—*A.* Our experience has been that it has not been so. We have found that it is not possible to get real information.

*Q.* Do you want an Indian only because he knows the language of the country or do you think an Indian will be better able to push your goods?—*A.* Both.

*Mr. G. A. Thomas.—Q.* What do you mean exactly by an industrial survey of the country?—*A.* To find what industries can be started in the different provinces or at places in which raw products and other things can be obtained.

*Q.* An industrial survey includes forest and mineral surveys?—*A.* We have put it down there. We say "From that survey it could be easily ascertained what articles could be made in a particular district."

*Q.* By industrial survey you include forest and geological surveys?—*A.* Yes.

*Q.* It also includes a survey of the raw products?—*A.* Yes.

*Q.* You say "If on the other hand Government lay down that price for price and quality for quality Indian goods should be given preference over foreign goods. Indian industries will never get the encouragement that they are entitled to from the Government and which every country has a right to demand from its Government." Do you mean to say that Government should buy for an unlimited period inferior articles at a certain price?—*A.* Not an unlimited period.

*Q.* But to foster a new industry?—*A.* Yes.

*Q.* And after that Government should be free?—*A.* There need not be any preference.

*Q.* That is not clear in your written evidence.

*Sir F. H. Stewart.—Q.* I do not quite understand that sentence: "If Government lay lown that price for price and quality for quality Indian goods should be, etc."—*A.* What ve say is that they should be prepared to pay a higher price for the Indian article for a few ears to give encouragement to industry.

*President.—Q.* Are you prepared to give us an idea as to what allowance should be made n the quality or——*A.* Though the quality is not so superior, if it is sufficiently good—we ay. Supposing the Government are buying khaki, though it may not be of the right quality till they should buy it in order to encourage the Indian industry. The exact allowance to be nade will depend upon the particular industry.

*Q.* Unless you can be precise and exact in laying down the rules, a mere general expresion that we should neglect the quality to a certain extent or give a lightly higher price does ot help us at all.—*A.* Once the principle is accepted that they are prepared to pay a higher rice, then Government can lay down rules.

*Q.* To help the industry you say that Government should admit lower quality or pay igher price. Would it be fair to the other taxpayers that Government should pay a higher rice for an inferior article?—*A.* To begin with it might cost the Government a little more buy the goods, but afterwards it would return many times more money than they have paid first.

*Sir F. H. Stewart.—Q.* With reference to trade representatives and commercial attachés ou say that they should necessarily be Indians. You detail the qualifications which they ould possess. They should have a thorough knowledge of the commercial and industrial onditions of India and should have had practical, commercial and industrial experience and good knowledge of the foreign countries. Do you hope that these men will be forthcoming, nd do you know many at the time who could fill such positions adequately?—*A.* I think ey can be had in this country.

*Q.* Do you know any yourself?—*A.* Supposing a man had to be sent to France, he ould know French. It would be difficult for me to name a man because the qualifications such a man would depend upon the country he has to go to.

*Q.* You think you can get a man with all these qualifications in India?—*A.* Yes.

*Q.* In your own industry, but can you get a man with practical and commercial knowledge , say, the jute industry for example?—*A.* He must be an all-round man—not of a particular dustry,—because the foreign attaché should have an all-round knowledge rather than of a articular industry.

*Mr. A. Chatterton.—Q.* You say that you would like to have one museum at least in each nportant district town, and you also say that these museums should be kept up to date. Do ou think that you would get an adequate return for the expenditure involved in carrying this ut?—*A.* Yes.

*Q.* Have you got any idea as to what it would cost to establish these mueums ?—*A.* In these museums there should be exhibited only foreign articles the like of which can be made in the particular district. They should not contain all the articles but only such articles as can be made in that particular district.

*Q.* If the district is purely an agricultural one it would not need any commercial museum ? —*A.* They would be using cloths and other things even in an agricultural district and they should be shown.

### SECTION IV.

*Hon'ble Sir R. N. Mookerjee.*—*Q.* You are generally opposed to Government acquiring any land for industrial purposes ?—*A.* Such as cannot be replaced.

*Q.* For instance, in Bombay the millowners find difficulty in providing buildings for their workmen, and unless Government come to their assistance and acquire the land they cannot make much progress in providing sanitary buildings for workmen.—*A.* Such land as can be replaced may be acquired.

*Q.* How can it be replaced ? *A.* About sugar, supposing there is any particular land.

*Q.* I am not talking of sugar.—*A.* If there is any land which cannot be replaced it should not be acquired.

*Q.* For instance, if a certain land is wanted for public purpose, in your opinion the Government should not have the right of purchasing it without being able to replace the land ? —*A.* Government exchange lands when they acquire.

*Q.* But there may be many instances where Government may not be able to exchange lands.—*A.* We are opposed to that.

*Q.* On principle ? -*A.* Yes.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* Supposing in Bombay you want to provide chawls for the mill-hands and there is no suitable place available, don't you think that Government should acquire land for providing chawls ? What compensation should be given ?—*A.* The compensation should be so fixed that the man should be able to get an equally good price of land.

*Q.* You must pay him the value of the land or give him another piece of land ?—*A.* The compensation should be such that he should be able to buy similar land not at a very great distance for the same amount.

*Q.* Are you only thinking of sugarcane plantations ? -*A.* I am thinking of any land.

*Q.* You say that the land must be replaced ?—*A.* We say as much as can be replaced, not that it should be replaced by Government.

*Q.* I suppose you know how the sugar industry was started in the Phillipines and Formosa ?—*A.* I would rather be without the industry than deprive the landholder of his land. If it cannot be started without acquisition of land on these conditions, we would rather be without the industry.

*Q.* Supposing the Government builds a canal, and it says we shall give you water if you keep only three-fourths of your land and give the remaining one-fourth to us, and in that way they can raise up an area near the canal in which they can start a sugar industry. Do you think that would be fair ?—*A.* I mean if it is waste land we do not object to it.

*Q.* The land may be required for a new canal.—*A.* We do not object to it. But if there are landholders there and they have got holdings there we are opposed to their being deprived of their land.

*Q.* Then you say "We strongly favour free use of river or canal water being given to industrial concerns in a way which would not injure agriculture and pollute water." At Ahmedabad are you charged anything for the river water ?—*A.* No. They will charge shortly.

*Q.* Do you think that is objectionable ? -*A.* Yes.

*Q.* You say "We believe that Government should give every facility to industrial concerns by giving them Government land whenever possible and available." Do you suggest that the land should be given at a concession ?—*A.* For new industries if there is no money available you had better give concession.

*Mr. G. A. Thomas.*—*Q.* You have no objection to waste or forest land being acquired by Government ?—*A.* No.

*Q.* How much waste land is in possession of Government at present ?—*A.* I have no knowledge.

*Q.* Is there any waste land privately owned ?—*A.* I was told that for the Tata Hydro-Electric scheme they had to acquire private waste land. There is some private waste owned by inamdars and individuals.

*Q.* You say "If the profits are to go to a private company or person, there is no reason why Government should go out of its way to help it, and in so doing do injustice to many." But you just now said that if Government spent five lakhs on a pioneer factory and lost two lakhs in selling it, it would not matter much. Government means the taxpayer and he loses the two lakhs.—*A.* How could you sell it otherwise ?

*Q.* Would you benefit the private person at the expense of the taxpayer ?—*A.* For industries like sugar, pioneering is not necessary. The profits go to one concern. Sugar is not started as a pioneer factory.

*Mr. G. A. Thomas.*—*Q.* There is nothing about sugar in the whole of this paragraph. You say "The gross earning and not the net earning of the land should be taken, and twenty times the earning should be paid to the owner of the land." Does the gross earning always bear a fixed proportion ?—*A.* No. The gross earning of that locality should be ascertained and then the compensation should be paid.

*Q.* Does the gross earning bear a fixed proportion to the net earning ?—*A.* It would vary.

*Q.* Would it not be fairer to take the net profits ? Why should you take the price as twenty times the gross earning ?—*A.* The man may be deprived of the land and he may find it difficult to get an equally good land.

*Q.* By gross earning you mean what ?—*A.* The amount of income without taking into account the ryot's own charges of maintenance and other things.

## SECTION V.

*Mr. G. A. Thomas.*—*Q.* Do you propose making education free for adults or only for children ? *Mr. Ambalal Sarabhai*—*A.* Children only.

*Q.* You say that "in order that workmen may be able to become departmental heads they must be fairly literate to acquire theoretical knowledge of the various processes. This can only be done by their receiving training at night schools."—*A.* Yes.

*Q.* In the same breath you say "But for obvious reasons night schools have not been successful."—*A.* No, as they are at present constituted.

*Q.* Night schools cannot be worked ?—*A.* No.

*Q.* Then why do you say "This can only be done by their receiving training at night schools."—*A.* After a generation they will be all right. Just now they will not become trained but the next generation will be.

*Q.* But you also propose that there should be a number of schools in different localities.—*A.* I mean night schools.

*Q.* But you say night schools are not successful.—*A.* According to the present system.

*Q.* What are the reasons for night schools not being successful ?—*A.* According to the present system of working, the hours are too long.

*Q.* What if you reduced the hours of work to, say, 8 hours ?—*A.* I am not in favour of 8 hours' working.

*Q.* Do you think that if the working day was shortened to 8 hours, the adult workmen would go to the night schools ?—*A.* There are greater chances of their going. This is my personal opinion. I am not speaking for the Association just now.

*Q.* If the working day was shortened from 12 hours to 8 hours, would they not have more leisure to go ?—*A.* I would not say 8 hours. The difficulty is that the work people do not do their work all the 12 hours. The working hours should be lessened gradually. As they get more efficient, the hours could be reduced. I think they will go then. The hours should not be reduced to less than 10.

*Q.* You say "With regard to training abroad of managers and supervisors, we believe that till such time as the Government have to make purchases of Government stores in foreign countries." You mean "so long as" ?—*A.* Yes.

*Q.* You say that "purchases should be made only from such firms as are willing to train a number of Indians at their works." Supposing no firms are willing to train Indians, would you cease to purchase from them ?—*A.* I should. If Government insists upon this condition, I think they will be willing to train Indians at their works.

*Q.* You say "It is a matter of surprise that our Government have been able to make little or no arrangement of the kind for Indians." Have you represented that to the Government at any time ?—*A.* No.

*Q.* What authority have you for saying that they make little or no arrangement? You say "It is common to see Japanese receiving practical training in factories and works in England." Do you mean to say that they welcome Japanese and exclude Indians ?—*A.* I could not say why they do it, but you see Japanese working in works there.

*Q.* Do they deliberately exclude Indians ?—*A.* I do not see Indians there.

*Q.* Do Indians try to go there ?—*A.* Yes.

*Q.* And they have been refused admittance ?—*A.* Yes.

*Q.* And Japanese are admitted ?—*A.* Yes.

*Q.* Do you speak from personal knowledge ?—*A.* Yes.

*Q.* Would you quote instances ?—*A.* Yes.

*Q.* Has this matter been represented properly to Government ?—*A.* We are putting it before Government just now.

*Q.* Hitherto you have not represented this grievance ?—*A.* No.

*Q.* For how long has it been in existence ?—*A.* I know of it for four years.

*Q.* You are speaking entirely of pre-war times ?—*A.* Yes, when I was there.

*Q.* Did you make inquiries as to why the Japanese were admitted ?—*A.* They said that was one of the conditions. They would not give me a satisfactory reply.

*President.*—*Q.* Can you give me the name of the firm ?—*A.* It would not be fair. I will write to you if you like. I can give you full information after looking up my diary, if you want me to. I know it was a firm of machinery manufacturers, but exactly what firm I do not remember at present.*

*Mr. G. A. Thomas.*—*Q.* Then you are generalizing from one case ?—*A.* I say, "little or no arrangement." I do not say no arrangement. I know of several instances, and could give you instances of Government scholars who have gone there and told me this. They have found the greatest difficulty in getting into the works.

*President.*—*Q.* The same works as those in which the Japanese were engaged ?—*A.* I will give you full information later.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* Have you got any schools in your mills at Ahmedabad started by millowners ?—*Mr. Parekh.*—*A.* We had, but no pupils attended.

*Q.* You mean the half-timers ?—*A.* Yes, it was not successful.

*Mr. Sarabhai.*—They were very irregular in attendance.

*Q.* Unless it is made compulsory they won't attend ?—*A.* That is so.

*Q.* We have been told by many of the mill agents that they have lessened the hours from 13 to 12, and are getting the same production.—*Mr. Parekh.*—*A.* No.

*Mr. Sarabhai.*—We are getting lower production.

*Q.* Even if you reduce from 13 to 12 ?—*A.* The maximum hours were 14, now they are 12

*Q.* How many hours do the mill-hands work ?—*A.* The efficiency is from 65 to 70 per cent. of the total hours.

*Q.* That is nearly 9 hours ?—*A.* Less than 9 hours.

*Q.* Supposing the hours were fixed at 9, do you think the mill-hand will be working 9 hours continuously ?—*A.* No, there would be some time lost in loafing.

*Q.* Do you think in a hot climate like that of Ahmedabad, he would be able to work in the factory for 4½ hours consecutively ?—*Mr. Parekh.*—*A.* Instead of one interval there would be three intervals every 3 hours.

*Q.* You again come to the same 12 hours ?—*A.* The actual work won't be so much.

*Mr. Sarabhai.*—That depends upon when the work people like to dine. That would apply to the majority of the men employed in the mill.

*Q.* Are not the meal times of the Mahomedans and Hindus different ?—*A.* Sometimes. We do not shut down for meal hours ; if we were shutting down for meal hours we would have to fix hours suitable to the majority.

*Q.* In a stretch how long would a man be able to work ?—*Mr. Parekh.*—*A.* Three hours.

*Q.* Then suppose if he works 3 hours, you give him 20 minutes.—*A.* Yes, half an hour for dinner and two intervals of 20 minutes.

*Q.* That generally would come to the same 12 hours ?—*A.* They would remain in the mills for 12 hours, but work actually for 10 hours.

---

* Not received when going to Press.

*Q.* If the time is reduced to 10 hours, they will have to be in the mills for 12 hours ?—*A.* Not exactly 12 hours ; half an hour more than the present time.

*Q.* That is, it will be 11 hours and 20 minutes instead of 12 ?—*A.* But the reduction must be gradual, not all at once from 12 to 10.

*Q.* Will you be able to give the same production ?—*A.* I think we shall suffer in the spinning production, not in the weaving.

*Q.* In the spinning where there is more heat and more work ?—*A.* In our spinning production we are sure to lose by the reduction of hours.

*Q.* Don't you think if the man gets more rest he will be able to work much better ?—*A.* The machinery will be stopped by giving so many stoppages.

*Q.* How will he be able to attend the night schools ?—*Mr. Sarabhai.—A.* It will gradually be lessened to 10 hours, as we find that they get used to the work.

*Q.* Is the Municipality providing any schools near your mills ?—*Mr. Parekh.—A.* Yes.

*Q.* Have you got chawls for your mill-hands ?—*A.* Some of the mills have.

*Q.* Suppose they go on strike, do you remove them from the chawls by giving them notice ?—*Mr. Sarabhai.—A.* That depends upon the conditions.

*Mr. Parekh.*—They are not deprived of their residence. Up to this time nothing has happened of this nature.

*Q.* Does it not compel them to be with you because they are in your chawls ?—*Mr. Sarabhai.—A.* Perhaps they feel the moral obligation and do not go on strike.

*Mr. Parekh.*—Such instances have not occurred.

*Q.* You say that you have seen Japanese students in England ; in what year was that ?—*A.* 1912.

*Q.* Were they working in Platt's and other factories ?—*A.* I could not give the name just now, but I have seen them ; many are receiving training as apprentices.

*Q.* Did you inquire if they were sent by the Japanese Government ?—*A.* I could not get full information, and I could not decently ask for it.

*Q.* But as you know, many of the students at the beginning were sent by the Japanese Government to England to study. Are there any Japanese here in any factories ?—*Mr. Sarabhai.—A.* I do not know.

*Q.* You think that technical education should be given side by side with elementary education ?—*A.* Yes.

*Q.* What technical education ?—*A.* Machine fitting, carpentry, joining, and things like that.

*Q.* With primary education ?—*A.* To the mill-hand that should be a special course.

*Q.* For the adult mill-hand ?—*A.* No, half-timers.

*Q.* Of what age ?—*A.* Nine to 13 years.

*Q.* But it must be in the vernacular.—*A.* Yes.

*Mr. A. Chatterton.—Q.* You say " The standard of examination for mechanical engineers should be uniform all throughout India ? " As a millowner, would you prefer to have the examination abolished ?—*A.* I think it ought to be more stiff than it is now.

## SECTION VI.

*Mr. C. E. Low.—Q.* Do you think that the Committee you propose with 13 members would be a practical working body for executive action ?—*A.* They should have subcommittees.

*Q.* Would that not make matters a great deal worse ?—*A.* I think it would work well. They could go through the questions and investigate them.

*Q.* I wish my experience bore you out. Would the discipline and the promotion of the staff of the Industrial Departments also be under this body of 13 members and sub-committees ?—*A.* There would be a Director and he would have the staff under him.

*Q.* The staff would be entirely independent of these 13 ?—*A.* Yes.

*Q.* What sort of questions would they give opinions on ?—*A.* They would lay down questions on which the Director would work.

*Q.* How often would they meet ?—*A.* As often as is necessary for the work.

*Q.* How often do you think that would be ?—*A.* It would depend upon the work that they would have to do. To begin with, they may have to meet very often, say once a week, to lay down the rules.

*Q.* Then the Karachi members you propose could spend most of their time on the sea ?—*A.* They may have to form the constitution, and afterwards papers may be circulated. They may give their opinions and there may be meetings, the same way as the committees would meet in Bombay, the Indigenous Industries Committee, for instance.

*Q.* How often do they meet ?—*A.* Once a month.

*Q.* Do they have representatives from Ahmedabad ?—*Mr. G. A. Thomas.*—One Ahmedabad member was always unable to come. *President.*—That shows what a good committee it was.

*Mr. Sarabhai.*—*A.* I attended most of the meetings.

SECTION VII.

*Mr. C. E. Low.*—*Q.* Do you contemplate Local Governments having any scientific, as opposed to technical—you appreciate the difference, don't you ?—experts at all ?—*A.* Not except on loan from the Imperial Government.

*Q.* You would not give them a chemist ?—*A.* They might get him if necessary. He should be Imperial, and his services should be lent for a time.

*Q.* In the Indian Agricultural Service all their members are definitely assigned to certain Governments with power to transfer them, if necessary. They are lent for a very long time.—*A.* If they find that the services of a particular expert is required by a Local Government, they should loan him from the Imperial Government.

*President.*—*Q.* You say you "favour the establishment of a school of economics in each presidency town on the lines of the London School of Economics." Does not the College of Commerce meet that want ?—*A.* The courses here are not of the same level as there. In Bombay they have no course for cotton. It does not meet our wants.

*Mr. G. A. Thomas.*—Is the University going to supply it ?—*A.* No.

*President.*—*Q.* You don't want one in Ahmedabad; you only want one in Bombay ?—*A.* Yes.

SECTION VIII.

*Sir F. H. Stewart.*—*Q.* You suggest the appointment of a permanent Board of Arbitration in regard to complaints relating to railway administration. Don't you make representations, if you want to, to the Railway Board now; do you want another board ?—*A.* We say there should be adequate trade representation on the board.

*Q.* You want a separate board from the Railway Board altogether ?—*A.* Either the present board may be altered, or there may be another board for this work only.

*Q.* About the registration of partnerships, you say it is very desirable in the interests of the public. I infer that you are in favour of it ?—*A.* If it can be done. We cannot make any practical suggestion as to what should be done, but it will be nice for trade if it could be done.

*Q.* Is it a matter of divided opinion in your Association ?—*A.* We believe it can be done, but cannot suggest any ways or means. It would be desirable, but how to do it we are unable to say.

*Q.* You are in favour of an inquiry being made by Government to see if it is possible ?—*A.* Yes.

*Mr. C. E. Low.*—*Q.* Are you aware that attempts were made to stop the adulteration of cotton in Bombay a certain number of years ago ?—*A.* Yes.

*Q.* Do you know why the Cotton Fraud Act was repealed ?—*Mr. Parekh.*—*A.* No.

*Mr. C. E. Low.*—*Q.* It was at the universal request of the cotton trade in Bombay, on account of the corruption of the staff employed and the great inconvenience to traders.

*President.*—*Q.* If you could have suggested how the new law could be formulated and assured us that you would loyally, as representing the millowners of Ahmedabad, carry it out, then it might be possible to do something. You have merely given us a general request, without helping us about the details.—*Mr. Parekh.*—*A.* One remedy would be to supply seed by Government.

*Mr. C. E. Low.*—*Q.* In what way would that help ?—*Mr. Parekh.*—*A.* Because they would get one kind of seed. There should be one Government depôt, from which seed should be obtainable.

*Q.* But there are other people who adulterate, besides the cultivators ?—*A.* We have suggested the way, *viz.*, that the cotton should not be allowed to be carried from one district to another.

*Q*. Supposing a person says he wants to take a certain amount of cotton to sell in another district would you allow him ?—*A*. The mill centres are very few, and presses and gins are at other places. Mills are not situated in the same districts as gins. There are only one or two central mills.

*Q*. If there is one mill, it is good enough. Take the Central Provinces. There are mills and gins at Nagpur, Badnera, etc.—*A*. It can be found out.

*Q*. Then you would be able to send to any of those places ?—*Mr. Sarabhai.*—*A*. If it is consigned to the mill it may be allowed, but it cannot be consigned to merchants, only to the mill direct.

*Q*. You complain about this watering in the press before baling. Supposing you made that action an offence, which would be punishable by a heavy fine, and liable to prosecution on the complaint of some responsible person, do you think that could be worked ? You don't deal with the adulteration, but with the man who does it ?—*A*. They should be fined.

*Q*. Do you think that would be a practical way of doing it ?—*A*. I think it very good, and would effectively stop it.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q*. About railway freights ; do you think that the rates charged are detrimental to the interests of trade ?—*A*. Yes.

*Q*. Are the rates of the Bombay, Baroda and Central India Railway any better ? *A*. It is the Bombay, Baroda and Central India Railway of which we complain between Broach and Ahmedabad, and Bombay and Delhi.

## SECTION IX.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q*. You say "There is also a belief that when Government officials want to unjustly punish or take to task a particular person, they attempt to put difficulties in the way of his business." In making this public accusation, have you got any proofs ?—*Mr. Sarabhai.*—*A*. We say it is our belief.

*President.*—*Q*. You say "There is no reason why this belief should not be corrected." I am afraid your belief is not sufficiently convincing ; you must have something more than belief.—*A*. We are willing to prove it and quote instances. We are not accusing ; we say that it is our belief, and can give concrete instances.

*Q* You mean the belief is general, and that it ought to be corrected ?—*A*. We can give instances why we believe.

*Q* Then the belief is well founded ?—*A*. Yes.

*Q*. Then there is no use in trying to correct it ; you must publish it now. If you have definite examples, cannot you bring them to the notice of the law ?—*A*. It cannot be done. How can we prove it in a court of law ? We have got that belief, and have certain grounds for our belief.

*Q*. There are dishonest Government officials, and officials who are not dishonest. Do you mean by this *all* Government officials ?—*A*. No, not all. But especially the Deputy Collectors and Mamlatdars objectionable. Some of them are the worst.

*Q*. Are there higher officials who are like this ?—*A*. No.

*Q*. We cannot do anything to help you in this matter, if you have only got a vague general statement to make and cannot give us concrete instances.—*A*. We can give concrete instances.

*Q*. But we cannot try those officials.—*A*. It is very difficult to prove in a court of law.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q*. When your grievances were represented was not the official removed from office ?—*A*. No, they get extensions.

*President.*—*Q*. You need not take up the question of legal proof. If you have got sufficient facts to found your belief on, pass them on to the Local Government and the Government will act departmentally and remove the man from the area.—*A*. In this particular case I reported it to the Commissioner, and the man got an extension.

*Mr. G. A. Thomas.*—*Q*. Is that not the best way of correcting the belief, by showing that the belief was based on wrong data ? *A*. I do not think so.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q*. Why have you not asked for the aid of Government ?—*A*. I have approached the Commissioner.

*President.*—It is very difficult to follow up these cases, but you may be perfectly sure that if you put a good case before the Local Government, it is the business of the Local Government to take it up, not ours. I think you may take it for granted that a good deal is done in cases of that kind. If it is reported, it is always inquired into.

## WITNESS No. 340.

MR. JEHANGIR C. MEHTA *of Messrs. Jehangir C. Mehta and Sons.*
*Perfume Distillers, Government Distillery, Dadar, Bombay.*

### WRITTEN EVIDENCE.

Capital.

In India there is hardly any difficulty in raising capital, however big, as long as any enterprise is started by influential big folks. The middle and the poor class do not get any sort of encouragement in this line; even from the rich of their own community. Such classes find a great difficulty in getting funds, although one might be possessed of genius for an industry or for an useful patent. This class consequently has to fall back from rendering any useful service to the country.

Government assistance.

It is this class that justly and rightly deserves some sort of aid and assistance from Government. The following methods by which Government could well aid and assist industrial enterprises will surely encourage Indian industries :—

(1) Loans without or with nominal interest, the principal amount to be returned by periodic instalments.

(2) Supply of machinery and plants on the hire-purchase system. This method will render better help than grants-in-aid and other assistance, as these are the important things which a middle class or a poor man endowed with genius finds so hard and difficult to obtain in the absence of funds and help from the rich.

(3) Purchase by Government of the products for a limited period, at the start, in preference to buying such articles imported from abroad. Guarantee from Government to buy a certain quantity will give great impetus to the manufacturer to work with confidence and hope of securing increasing and permanent business.

(4) Free and ready advice by Government experts in cases where one finds any difficulty or difficulties, through cause or causes, unknown to and difficult for the manufacturer to find out or to detect. Free and prompt advice and help, if easily obtainable from an expert, would be the means of saving a number of persons from being ruined through want of such advice and guidance. Such difficulties are not uncommon and arise very frequently in the course of a business. It is also not uncommon, but frequently we hear of instances of many a good and promising enterprise entirely given up, through sheer disappointment, from want of advice and assistance to remedy the difficulties. I advocate this method very strongly, as one of the best, which even money cannot solve. It is an open fact that in India people act on the principles of self-interest and self-motive, and hence instances of true and genuine advice are very remote. Actual instances are known where a father did not impart the ins and outs of a valuable recipe, the process of manufacture or the secrets of a good industry, to his own sons, and consequently such genius, talent, etc., are always buried in the grave with the deceased.

Exemption of income-tax.

I do not think one can justly advocate exemption of new undertakings from income-tax. This tax is not levied on any individual who does not work at a sufficient profit to make himself liable to pay such a tax. I am at a loss to understand how and in what manner imposition or exemption of income-tax could hinder or prosper an industry, as the tax is taken on profits only. At the same time one sees no reason why one should deprive Government of such income when his business is working at a good profit. Amount so saved by Government can be well spent for other genuine needs and wants, and thereby receive the blessings of others who require such aid.

Exemption of taxes and duties

I respectfully beg to draw special attention of the Members of the Commission to this important matter. I am not an advocate for the total exemption or abolition of all taxes and duties on industries and articles used in the process and manufacture of such industries, and especially at the present time of war when no Government, however liberal, can well afford to see the revenue decreased. Tax and duty on imported articles, as well as on articles locally manufactured and articles used in the process and manufacture of Indian industries, should be reduced, and in certain cases entirely done away with—of course with due precaution and supervision—in order to impose safeguards against misuse or abuse.

Duty and tax should be reduced or abolished in the following cases on—

(1) Crude materials imported and used for local industries.

[It is impossible and it would be very long before India could manufacture all her wants and could stand on her own legs to manufacture and produce all articles required for industrial purposes.]

(2) Crude articles of Indian manufacture.

(3) Final products of Indian manufacture.

Tax and duty on all the following should be increased :—

(a) All imported goods (ready for sale as such) and which could compete with such goods of Indian manufacture.

(b) All crude articles exported from India and which are used by foreign countries for the manufacture of articles, afterwards imported into India as finished products, and which could thereby compete with such goods locally manufactured.

These arrangements would place the Indian manufacturer on a better footing, and who could thereby compete with foreign goods. Of course there should be strict and close watch and safeguard against misuse, abuse, etc., etc. Concession could easily be granted by special permits after minutely looking into individual cases separately. Government could also reserve the right of granting or refusing such concessions according to the merits of individual cases.

Industries receiving such concessions from Government should be open to inspection by officers appointed for the purpose, with rights to cancel such concession in cases of detection of misuse, misconduct, etc., without giving any notice. These above will not only encourage Indian industries, but at the same time do away with total dependence on foreign countries during the times of scarcity, famine and war.

Government control and supervision.

I am strongly in favour of Government supervision and control, not only in methods of Government assistance, but also in individual undertakings, in order to impose safeguards against misuse, abuse, etc., and at the same time to prevent the poor, ignorant, illiterate mass of the public from being cheated. The betterment and interest of the latter is intended indirectly by the Government. It is the middle and the poor class that suffers terribly during famine, scarcity and war ; and it is in the interest of this major portion that Government should have strict supervision and control. What is the aim of our Government at present ? Advancement, betterment, promotion and welfare of the trade and commerce of India are the beautiful aims of our sympathetic Government, besides the removal of scarcity and difficulties in times of war and, above all, to supply the mass of ignorant, poor, illiterate Indians their daily wants at a cheaper price. In the absence of Government control and supervision, the manufacturers (who are undoubtedly the first to be benefited), notwithstanding their receiving the concessions so generously given by Government, might not only not reduce the price of the manufactured goods, but might do something worse and might supply quite inferior and useless articles at a fancy price, and thereby frustrate the beautiful and generous aims of our sympathetic Government.

Form of control.

Special experts should be appointed for different industries who could advise, guide and at the same time supervise the working of the manufacturers. The work of supervision should under no circumstance be left in the hands of other than superior officers, who can visit such industries, test the manufactured goods, and constantly inquire into the sale and the selling price of the manufactured goods, etc.

Pioneer factories and permanent enterprises.

Government can establish big factories requiring large capital in the interest of India, and in cases where no such factory has already been started, after ascertaining the practicability of the same, but after the same has been found well working, such enterprises could be established on permanent footing. Later on such institutions could be easily sold to or handed over to private individuals or to joint stock companies formed by Indian money. The management can even then be left into the hands of Government. Government management only would more than suffice as ample guarantee for the prosperity of the business. There would then be no difficulty for the raising of capital for the same. There is a great need for such institutions in India conducted by Government at public money, thereby doing away entirely with any shadow of suspicion or even doubt as to the genuineness of such business. Establishment of one such institution will at once prove the usefulness, wants and necessity for many more. The first outlay and undertaking should commence from Government, who could also be relied upon for the genuineness of articles manufactured and produced under Government management and supervision.

The following industries should draw the attention of Government and which require immediate start :—

Manufacture of—

(1) Matches.
(2) Drugs and chemicals.
(3) Glass.
(4) Paper.
(5) Sugar.
(6) Colours and paints.
(7) Foreign wines and spiritual liquors.
(8) Toys and other such articles.

All these above drain out heavy sums from India into foreign countries. The above should be located in such districts as are easily accessible to all crude materials required in the manufacture ; if such institutions are not advisable separately for every presidency. Such factories should be extensive. The first outlay and start should be from Government, and after they are well established, there would be not the least difficulty for converting them into joint stock companies in order to enable Government to withdraw her own money for other purposes and uses requiring such help. These would ultimately, without the shadow of doubt, prosper India.

Your humble servant is strongly of opinion that some of those self-interested Indians, who cry out for other unnecessary reforms, and who entirely forget their duties towards their ruler, their own people and their own country (as required even by their own religion), cannot but praise such acts of Government as proposed above, which would be the stepping stone for the improvement, advancement and prosperity of India, which has so far so much advanced as compared with India in olden times, and which is bound to still prosper under the British flag and rule if there is genuine co-operation with the rulers, and provided only if the leaders of every community have at their hearts the welfare of the poorer classes whose betterment should be the only goal to aim at. Although I am not at all a politician, I cannot but remark as aforesaid, as wrong agitations will never improve the condition and status of our poor countrymen, as the same good object is not at all aimed at by many of the so-called "leaders."

Financing agencies.

Financing agencies, apart from Government or banking aid, are ruinous. Large percentage of interest on money borrowed and the dread and the severity of the terms of money-lenders are the causes of ruin of many an industry. Banking agencies could easily give facilities to the existing or future industries by buying or ordering large quantities of crude materials, machinery, appliances, etc., for the manufacturers, and could supply such articles by piecemeal to the manufacturers by cash or instalment payment system. A small percentage of interest could not be complained of. The bankers could also give small loans on manufactured goods by special arrangements in cases where further funds are required. These arrangements and facilities ought to come from rich citizens whose solemn duty should be, as stated in previous pages, towards the welfare of their own countrymen; but it is a matter of regret that hardly any such institution or body exists to supply the needs of the mass of the poor. The only instance of such a philanthropy is found in the "Tata's Education Scheme." Funds are provided from this scheme to educate intelligent Indians without distinction of caste or creed and loans given to such approved candidates in order to enable them to take higher education in Europe. The student returns the loans by instalments when he is well settled in life, fully benefited by the scheme. This scheme has brought out many a bright Indian, and it is obvious that in the absence of such a scheme the very student would have remained in darkness for his life for being poor though intelligent.

Co-operative societies.

Nothing could give better results in any industry, trade and in almost all branches of business than the existence of co-operative societies. If well formed, these would tend, not only to be a useful medium between the employer and the employés, but would be a most useful instrument for remedying difficulties and obstacles in the way of advancement. If the members of such societies have in their hearts only the welfare of the poor and the country to which they belong, such societies must prove a sort of blessing.

The results of ill-advice to the poor class of labourers, which often merges into strikes, etc., which are not uncommon, and which generally results in a loss to the strikers themselves as well as inconvenience to their own countrymen, are well-known. In the presence of co-operative societies the results would necessarily be good in the interests of both the employers and the employés. They would surely do away with inconveniences and loss to the public. There are many co-operative stores conducted by different bodies, such as railway companies, etc., on many hill and other stations, with gratifying results. They tend to bring to the easy and cheap reach of the residents of such places their daily needs. The results from co-operative societies would be very much more gratifying. They would not only supply the needs, remove difficulties, but create a friendly link between the ruler and the ruled. They could at the same time afford aid, help, loans and advice to the mass of the poor, and in most cases would be the proper instrument for relieving the poor from heavy and ruinous interests of marwaris and sahukars. Every line of business, however small, should have separate co-operative societies, who should conscientiously aim at the betterment and improvement of the mass of the poor by—

well clothing them;
well housing them;
well advising them;
well supplying their needs; and
well protecting them from evil ways, debts, heavy interest, etc., etc.

These must necessarily improve the condition of our poor. This is the class which suffers heavily when ill-advised by a few so-called "well-wishers," who simply aim inwardly at their own indirect interest more than the good cause of the poor. In my humble opinion, there should be a co-operative society for each of the following:—

Co-operative society for mill-hands.
Co-operative society for railway servants.

Co-operative society for agricultural class.

Co-operative society for housing the poor.

Co-operative society for giving loans and advances to the poor and those who are quite backwards in any industry from the absence of proper funds, etc., etc.

Co-operative society for supervising the supply and the needs of the poor.

Co-operative society for prevention of high and fancy prices of food-stuffs.

Co-operative society for prevention of cruelty to human beings by detecting and bringing home cases of adulteration of food-stuffs such as milk, ghee and other articles of food.

Limits of Government aid.

Government should aid the existing enterprises by way of funds, advice, reduction or abolition of taxes and duties, etc., etc., instead of competing or allowing other foreigners to compete with existing such enterprises, and not in any way by encouraging the multiplication of the existing enterprises without proper and just reasons.

Exhibitions.

Industrial exhibitions have manifold values :—

(1) Manufacturers are brought to the notice of the public.

(2) Public come to know of the different products of their own country.

(3) By the above two factors such exhibitions give encouragement to the industries of the land.

(4) The manufacturers know their own numbers.

(5) They tend to bring to the notice of Government the products and manufactures of their individual presidencies.

(6) They bring to the notice and knowledge of the manufacturers, and especially the agriculturists, improved tools and plants by the exhibition of such articles.

(7) Demonstrations by way of working of the above will prove the utility and usefulness of new inventions, which could save unnecessary extra labour and money, enabling them to bring better results and to do much more work at a less cost and labour, and thereby increase their own income.

In the opinion of your humble servant, Government should hold such exhibitions regularly lifferent times and places and should encourage exhibitions by private enterprises.

Government patronage.

Lists of imported articles used and consumed by Government should be regularly published in order that the public might know the wants of Government. These could at the same time afford a great aid to the manufacturers, who could also bring to the notice of Government as to their ability to supply the actual wants of Government. Lists if well circulated will afford all the necessary information to all at any time and at any place and without any expense whatsoever beyond the nominal value of the price of the list. Such results could under no circumstance be obtained by the simple exhibition of goods in museums which could only give a faint idea to the visitor only, and which might in many cases even escape the notice of a visitor. A visit to such a museum involves expense.

After knowing the needs of Government through such lists, one can offer his goods by submitting samples, quotations, etc., and thereby enable Government to purchase such stores for Government departments, if once satisfied as to the merits of the articles. This would ultimately save money and time in indenting goods from other foreign countries.

Land policy as far as industries are concerned

Your humble servant's reply regarding pioneer factories and permanent enterprises answers this question as well. Government could not have permanent enterprises started as pioneer factories in time to be handed over to private individuals or joint stock companies as established enterprises. without first relaxing their policy as regards the land on which such enterprises are intended to stand or erect. Government should give land to approved industrial concerns and for purely industrious purposes on long lists and moderate rent, free from other incumbrances. When rulers try to give facilities to the industries in the interests and welfare of the country, it is highly incumbent on municipalities and local boards to assist the local industries by relaxing the rules and regulations for building, by charging special reduced taxes for such industrial enterprises, and assist Government by contributing funds towards loans and organizations of pioneer factories and permanent enterprises.

Trade journals.

A trade journal could undoubtedly prove very useful as a reference book, if published regularly in English and vernacular languages. Those engaged in industries, with the help of such a journal, would be able to know where to get their wants, and indirectly bring to the notice of others their own articles of manufacture, and so on. It may be compiled by Government on the style of a trade directory. There would surely be a great demand for such a useful book of reference in matters commercial.

Certificates of quality.

To my humble opinion, a system of Government certificates of quality and fitness is not only advisable, but quite necessary, to the advantage of both the manufacturers and the public in the following cases :—

(1) Manufacture of drugs and chemicals (compulsory).

(2) Food-stuffs (compulsory).
(3) Patent medicines (compulsory).
(4) Wines and spiritual liquors (compulsory).

Manufacturers holding such certificates could be relied upon for their articles by the public. Such certificates would in certain cases tend to save many valuable lives, as numbers of cases of heart-failures occur in Bombay Presidency every week. Perhaps one of the most probable causes is the free use of non-standardized worthless and injurious preparations in patent medicines, which find great sale through bombastic advertisements, etc., etc.

System of voluntary certificates would be advisable in the following cases:—

(1) Perfumed spirits, (2) Food-stuffs, and (3) Patents.

The difference between a licence and a certificate of quality should be clearly impressed upon the mind of ignorant class. A license does not imply a certificate of good quality.

Organization for testing and granting certificates.

Government Chemical Analyser or any other such independent and reliable Government officer should have the powers of testing, analysing and granting certificates to manufacturers whose goods are approved of. No fees or charges should be imposed in case of compulsory system. A small nominal fee could be taken and charged for certificates in the voluntary system.

Prevention of adulteration.

It is a great pity to find that we have no such body or bodies in Bombay for the "prevention of cruelty to human beings," who could inspect and prosecute those found guilty of adulteration in food-stuffs and other such articles of daily human consumption. Numbers of man-slaughters could be detected thereby. In the case of milk—the only food for infants and children—adulteration is the only and sole cause for registering so many deaths every week in infants and children through eclampsia, fever and other intestinal troubles. Heavy penalties in fines and even imprisonments should be imposed on persons found guilty of adulteration in the following:—

(1) Milk,
(2) Ghee,
(3) Drugs, and
(4) Toddy (which forms part of food of the poorer classes).

It is a matter of further regret to find that our civic fathers in the municipality, even in Bombay, have up till now done nothing in the interests of the poor and the young in this important line, which ought to have been the first to attract their attention. In cases of numbers 1, 2 and 3 a society or body such as "Society for the Prevention of Cruelty to Animals" should be organized and a small establishment maintained, who could inspect and submit samples through the head of such a department to the Government Chemical Analyser or such other authorized officer in cases of least suspicion, and thereby prosecute the offenders in courts of law and have the offenders severely punished. A large amount of funds by way of subscriptions could easily be gathered and collected from the public, aided by municipal and Government annual grants. It is quite superfluous to dilate upon the excellent useful work and so valuable services rendered by the "Society for the Prevention of Cruelty to Animals," as could be seen from the number of prosecutions in the police courts every day.

Trade marks, trade names and misdescription.

Laws for registration of trade marks and trade names should be enacted, and such names and marks should compulsorily be required to be registered. Misdescription in any way, in any shape and in any manner should be strictly forbidden and prohibited. All persons using false trade descriptions should be tried and punished. Misdescription misguides the poor, who are thereby cheated. It is in the interest of these poor classes that Government should have an iron hand on those manufacturers whose articles bear misdescriptions. In all different executive departments there should be strict standing orders to confiscate all goods bearing misdescriptions on wrappers, bottles, boxes, packages, tickets, labels, etc., etc., and the person using as well as the person selling articles bearing such misdescriptions should be punished according to law. Manufacturers should be compelled and required to use their own name or names with other some sort of distinctive trade mark or trade numbers, if necessary, and should under no circumstance be allowed to use bogus misleading names. They should further be compelled to state distinctly the name and the place of manufacture of the body of such wrapper, ticket, etc. They should also be forbidden and prohibited to use any misguiding representation on such wrapper, tickets, labels, etc., such as images and representations of medals, unless the goods have been actually awarded such medals. A medal of course carries a good impression upon the mind of the buyer that the article is the best, as the same has been awarded a medal. Whereas practically the buyer is cheated when such article has never been awarded any such medal or medals. This is clearly a misdescription and misrepresentation and should not be at all encouraged. From want of actual proper supervision persons are found to do worst acts. Some examples of the above will be found in the following pages.

Registration of partnership.

In the interests of the public, Government should immediately enforce registration of partnership. Registration of partnership should be compulsory. Names of all partners should not only compulsorily be registered, but it should be accompanied with declaration as to the percentage of individual share in the partnership. Addition to the already existing names of partners should immediately be notified and such additions immediately registered. Dissolution of partnership should at the same time be compulsorily notified and registered. Great frauds are perpetrated through want of such compulsory registration. Companies are formed wherein there are some well-to-do partners and the rest without substantial means and financial capacities. In India some of the brokers and others carry great influence in securing money as deposits in certain companies, etc. They misrepresent and misguide the people to induce them to deposit money in such firms by holding hopes of large interest, and so on. The interrogation and misrepresentation as to the solidity of the firm induces widows and others to deposit what they have with such firms under the hope of a big percentage of interest. As long as the firm is favoured with good stars in their mostly speculative business, the rich or well-to-do partner swallows the whole cream, allowing only a small percentage to the other so-called partners. The partner or partners with financial capacities is and are the prime moving body or bodies in the firm. In case when there is a big loss, which could be well paid by the above-mentioned prime mover or movers, the whole loss is debited against the name or names of the other so-called partners. These latter who are simply led by the prime movers in no way hesitate to take the whole responsibility upon their shoulders, and even dare to swear in a court of law as to their being the only partners in the firm, and thus free the other well-to-do from their just responsibilities. They further immediately take the benefit of the Insolvency Act, and thus leave the poor widow and other depositors to their pitiable condition, who ultimately lose everything, and thus are reduced to destitution and poverty. The rich partners thus safely escape from the clutches of the law. Such occurrences are not uncommon. Under the above circumstances, registration of partnership is the only best and easy means of preventing and avoiding such frauds, and thereby save many from ruin.

Jail competition.

Government should greatly encourage jail industries. A criminal often does an illegal act under circumstances which he sometimes cannot refrain from. Often one finds himself without any means of subsistence, and generally when he has nothing to depend upon for his daily wants, he is naturally tempted to do an illegal act or crime. In jails convicts are taught some sort of art or industry during the period of their imprisonment. This brings to the reach of such a convict some sort of means upon which he can rely for his maintenance, immediately he gets out of jail. He naturally tries to earn with the aid of the art which he has acquired while in jail, and thus could save himself from further criminal acts. Jail industries under the circumstances should not only be encouraged, but there should be homes for such criminals who have left jails, and where such criminals could be housed, fed and clad and made to work, and thus to afford them their means of subsistence, whereby they could lead a decent honest life.

Perfumery.

I now beg leave to place the following humble suggestions in connection with the manufacture of perfume spirits—an industry in which I have been actively concerned and deeply interested—and I beg to be pardoned if I state at length on the subject.

I am manufacturing perfume spirits under Government supervision and control since nearly twelve years and more in Bombay.

I am the only manufacturer of perfume spirits in Bombay by distillation.

There have been many ups and downs before the outbreak of the present war.

Before the commencement of the present war, there was only one licensee by distillation and very few by admixture working under direct Government supervision in Bombay.

After the outbreak of the war, a number of licensees by *simple mixture* have sprung up, *but not a second by distillation, which is the proper process for the manufacture of such articles.*

Manufacture of perfume spirits, as its name implies, should be under direct supervision of the authorities in order to impose safeguards against misuse, misconduct, etc.

One of the perfume spirits, viz., Cologne water, which has the larget sale in India, is used as a medicine from time immemorial. Its properties as a carminative in stomach-ache, flatulence and cholera are well-known. It relieves head-ache and reduces fever when applied locally. It has besides anodyne properties of removing pains, besides its reviving and stimulating effects when taken internally for faintness, hysteria, collapse through drowning, cardiac, weakness, etc., etc. For all the above results, Eau-de-Cologne must have been properly manufactured and must possess of such good and valuable properties.

Government consequently requires that the preparation must be prepared from pure rectified spirits and not methylated or denatured spirits.

On account of the great difference in the amount of duty on rectified and denatured spirits, the price of these two articles necessarily is different. Price of a 5-gallon drum of pure rectified spirit is nearly ten times more than that of denatured spirit, which is meant for burning purposes only. Any one using the latter instead of the former in the manufacture of perfume spirits would therefore be saving a big amount by fraudulent means, which is not only illegal but should be responsible for man-slaughter.

The above misuse or abuse is quite impossible in the case of a distiller who is the proper person for the manufacture of perfume spirits, as could be seen from the following:—

A distiller has to manufacture at a place appointed by the excise authorities.

His place of manufacture is not consequently his *own place of residence*, but a place appointed as aforesaid.

His manufactory is under excise lock and key. All crude articles brought to the manufactory, including rectified spirits, are inspected and tested by the excise officer on duty and then allowed to be admitted into the distillery.

The officer in charge tests and measures the strength and quantity of rectified spirit so brought, and the same is noted down in the register kept for the purpose. The name of the person and the place from where such rectified spirit has been bought and brought is also noted.

As soon as perfume spirit is manufactured it is tested by the same officer and its strength again noted.

All the manufactured goods are then allowed to be filled in bottles, labelled and sealed. The inspector again picks up a number of bottles filled in and ready for sale and the strength of the contents is again tested and noted. A permit is then issued for the removal of such goods after the accounts of the manufactured goods are noted down. Forms* A and B are affixed herewith.

From the above one can see at a glance the exact quantity of rectified spirit brought to the distillery and the amount of perfume spirits manufactured and removed. These are the proper means and instruments for the prevention of any misconduct or misuse and should be enforced for all manufacturers whether by distillation or admixture.

At this moment it could be asked, and perhaps justly and rightly, in the interest of the public, why admixture, which means nothing by way of skill, knowledge or intelligence, and which involves no process in the manufacture, except simple mixing of a few ingredients in spirit and finally bottled, should be encouraged? Your humble servant, when putting before the learned Members of the Commission the above facts, is in no way led by any ill-feeling or bad motive or jealousy towards any one of the other licensees by mixture. It is purely the interest of the poor, ignorant, illiterate mass of public that I rightly defend. At the same time I do not at all wish to mislead or misguide the Commission as to the superiority or otherwise of one or the other sort of goods.

One cannot understand the necessity or the good of granting or the need for such a licensee when the licensees by admixture (the number of which has grown rapidly after the outbreak of the war) are allowed to manufacture their preparations at their own places, in most cases, in the very sleeping room, perhaps the only room in their occupation.

A license means and implies control and supervision. How on earth one can have control and supervision on such licensees it is difficult to understand? In order to have proper supervision the Excise Department could not possibly do so, even with the aid of a separate staff and at a heavy cost, as long as these licensees are allowed to prepare goods at their own places. It is quite impossible to have a proper check and supervision as long as the so-called licensees work at their own places.

It is a question whether the word "manufacture" can apply to such simple mixtures, which involves no process whatsoever. The very license states "A license to manufacture, etc., etc." It is indirectly discouraging so good and noble an industry to allow such licensees to work as they like at their own places at any time of the day and night. Then, why on earth there should be any restriction and so much supervision, check and control over a distiller?

1. What are the good aims and objects of Government by appointing Commissions?

Encourage Indian industries. Now, may I be pardoned if I say "Is there anything like industry in the manufacture of perfume spirit by *mixture?*"

Beyond simple mixing and putting on fancy labels with false trade descriptions, one hardly sees anything of importance.

2. What are the ultimate objects of encouraging industrial enterprises?

(a) to make India quite independent for the supply of her wants and needs;

(b) to reduce the ever-increasing price of articles coming from abroad;

---

* Not printed.

(*c*) and most important, to watch and safeguard the interest of the mass of poor, illiterate, ignorant Indians, who are simply led by whatever is being told to them; and

(*d*) to prevent the public from being cheated.

Now, what are the ways to encourage this line of Indian industry ? The answers to the last would be found in previous paras, a summary of which however would not be out of place here, and I may be pardoned for repetition.

(i) Free advice by an expert in case of difficulties in the manufacture.

(ii) Reduction of duty on articles used in the process of manufacture and especially rectified spirits.

(iii) Reduction of duty on imported crude articles, containers, etc., etc., used and required in the manufacture.

(iv) Increase in the amount of duty on manufactured perfumes imported from abroad.

(v) Purchase by Government of locally manufactured goods for Government departments.

(vi) And most important—proper check and supervision—which is quite, nay absolutely, necessary in the interest of public life and money, and in order to prevent and impose safeguards against—

(1) Misuse.

(2) Misconduct.

(3) High price.

(4) Cheating the poor, ignorant, illiterate class by—

(*a*) Bogus labels.

(*b*) False names and misdescriptions.

(*c*) False trade descriptions and representations.

(*d*) Deleterious articles.

And not by free multiplication of such industries without adequate supervision, safeguards and control.

At this juncture one might think I am advocating and advising abolition of all licensees by admixture.

Even if I were to say so, I do not think I am in any way wrong, as the very idea of a license for simple mixing could not sound sense to any one with common sense. If such licensees are allowed, where is the wrong and harm for a citizen to add some oils to rectified spirit (which he can buy without the necessity of a license) and prepare his own perfumes at his own house for his own use ? Where is the harm or wrong for one to buy rectified spirits and to add some flavouring extract or liquor, and thus prepare his own brandy and whisky at his own place, for his own use ?—if brandy and whisky were to consist of only the mixture of spirits and something to taste and flavour, as in the case of the so-called licensees by mixture—spirit plus something for the sense of smell to form a perfume spirit ! ! !

I am confident these above points would explain matters more clearly.

Now, notwithstanding the above points in favour of my arguments, if Government and the authorities wish to encourage such *business*—I call it business, as I do not think one can call it an industry—your humble servant would suggest the following to remedy the evil in the interest of public life and money, and in the good name and fame of the "perfume industry."

No proper supervision could be had on such licensees as long as they are allowed to manufacture at their own places even at an extra cost.

All the licensees for the manufacture of perfume spirits either by distillation or by mixture (if the latter are allowed) should be compelled to work at one place and under one supervision and control as was the custom in past years.

This will do away with any expenditure beyond the services of one excise inspector, as is the fact in your humble servant's case at the Government Distillery, Dadar.

It is not at all necessary that one particular spot should be named, as the licensees are supposed to work at any place appointed for the purpose by excise authorities.

A notice could be given by the excise officer that licenses for the manufacture of perfume spirits could only be granted or renewed provided the licensees manufacture at such and such a place.

This will bring all the licensees on equal footing and supervision.

I am confident from my personal past experience that a number of licensees by mixture will immediately cease manufacturing, only because the direct supervision will not allow or encourage any misuse, abuse, etc. It will further prevent and avoid expenditures by way of criminal prosecutions for bogus labels, misdescriptions, etc., etc., as the inspector in charge of such a place will inspect all labels and will not allow anything beyond what is right and just. Direct supervision and control will do away with and prevent the dread of using deleterious and dangerous articles, such as denatured spirits, which one can so easily do at his own place, if one *cares more for money* than his profession or human life.

A proper check on manufacturers as suggested above will do away with one thousand and one evils.

Some of the manufacturers by mixture use labels which would make others to believe that they are the manufacturers of places other than India, and thus mislead public by such bogus labels. Many are found to have on their labels medals or imitations of medals in order to mislead and cheat the public that it is a superfine preparation having been awarded so many medals. Some time ago Mr. S. Smith, the Assistant Collector of Excise, I am glad to say, rightly and justly prevented and stopped "licensees by mixture" from using the words "double," "double distilled," etc., which most of the "licensees by mixture" had dared to have on their labels.

In addition to representation of false medals, there are instances in which the following descriptions are found on some of the labels on Eau-de-Cologne bottles prepared by simple mixture, and I would better leave it to the good sense of others to think—why such descriptions are intended for ?—than I could describe.

Eau-de-Cologne.

*By Authority of the Government of Bombay.*

Eau-de-Cologne.

Prepared according to the Rules of Licence of

*THE BRITISH GOVERNMENT.*

Eau-de-Cologne.

Extra Aromatic Quality

Perfumerie

*Manufacturers.*

Health Flower Water (with Cologne Water label, false medals, etc.)
Made in India

*Flower System*

*GERMANY.*

[The italicised words denote printed in red.]

The above are intended to give some idea, and I do not think it necessary to give many more.

From the above it will be seen to what extent and amount of odds a licensee by distillation has to work against those by simple mixture for no fault of the distiller.

A licensee by distillation has to work under continuous and direct supervision of the authorities. He has to work at prescribed hours. He is not supposed to work on Sundays and all Government holidays. There is a close check on all articles brought to his manufactory, as well as all manufactured goods removed from the distillery.

Whereas a "license by mixture," which involves no process, ability, genius or knowledge, and which could hardly come under the heading of an industry, allows the licensee to work at any time in the day or night at his own place and without any of the above stated supervision and control.

Lastly, a most important and a practical suggestion in the interest of this noble industry that could be advanced is that in case should Government conclude that the perfume industry deserves encouragement, and should Government think of giving concession by way of abolition or reduction in the amount of duty on rectified spirits used for the manufacture of perfume spirits, such concession should only be given in the case of a perfume distiller and not to any of the licensees by mixture, or at least to grant such concession to only those who work and manufacture at a place appointed for the purpose, and such concession should not be granted to those who manufacture at their own places.

(*Mr. J. C. Mehta did not give oral evidence.*)

## WITNESS NO. 341.

MR. BHIMBHAI M. DESAI, *Divisional Inspector of Agriculture, N. D., Surat.*

### WRITTEN EVIDENCE.

Information regarding the starting of more industrial concerns than can be maintained in full-time employment has been collected for the five districts of the Northern Division of the Bombay Presidency known as Gujerat proper. But it does not include any information or figures for the intervening Native State territories, and in all the future references the five districts of (1) Surat, (2) Broach, (3) Kaira, (4) Panch Mahals and (5) Ahmedabad will be styled as Gujerat. Of these five districts, Nos. 1, 2 and 5 have been growing cotton long since, but Nos. 3 and 4 have begun growing cotton very lately and the cultivation is extending in these two districts by leaps and bounds.

Area under cotton compared.

The average area of Gujerat under cotton for the years 1914 to 1916 is 708,005 acres, whereas the average area for the years 1904 and 1905 was 820,675 acres. This shows that the area under cotton has decreased in a decade instead of increasing, but the ginneries have increased from 69 in the year 1905 to 107 in the year 1916, which shows an increase of 38 ginning factories. Similarly, the total number of presses in the year 1905 was 19 which has now in the year 1916 gone up to 30, an increase of 11 presses.

The average outturn of kapas (seed cotton) for Gujerat works out at 254,439 bhars (bhar = 924 lbs.) or 235,101,636 lbs. in the year 1914 to 1916 and the average yield of seed cotton works out at 332 lbs. per acre.

In order to gin the above quantity of kapas (seed cotton), 1,957 gins are actually necessary, taking into consideration the ginning power of a single gin in most of the existing factories at two bhars = 1,848 lbs. of seed cotton per day of 12 hours' working for a working season of 2½ months having 65 days as actual working days after deducting 10 holidays as required by Factory Act, whereas there are actually 3,495 gins in Gujerat, *i.e.*, roughly an average of 77 per cent. more than the required number. If we make allowance for 500 gins being required more for accidental or other stoppages, then, too, the number of gins is more by 53 per cent.

Similarly, the lint of the above yield of seed cotton of Gujerat will give from 185,000 to 200,000 pucca bales, which will give sufficient work to 10 presses working full-time in a season of 78 days or 3 months after making allowance for 12 days as holidays. So in case of pucca presses, too, there are 20 in excess of the number really required. But if we even make an allowance for 5 more presses in order to save freight and trouble of taking kutcha bales to long distances, then, too, there are 15 more presses than what is required. The State territories whose gins and presses have not been included in the figures given above have also a large superfluous number of both gins and presses.

Distribution of gins and presses in Gujerat.

As will be seen from the statement A attached herewith, the gins are indiscriminately situated. They are mainly on the railway lines. Even on the railway lines they are not well distributed. Places like Palej, Broach, Ankleswar, Viramgam have got many more than what are really required, whereas from Navsari to Surat there are none on the main line excepting one at Maroli, a distance of nearly 18 miles.

Similarly, the presses, too, are located at places where there are many gins or at places whose mark fetches a better price in the market. There are very few gins in the interior as compared with those on the railway lines. The merchants always look to their own interest in having the ginneries on the railway lines, but from the cultivator's point of view they are not well situated, and they are required to carry kapas to longer distances. If the gins were distributed regularly in the whole of the cotton growing tracts, one ginnery having 30 gins will be quite enough for an area covering approximately 80 square miles.

As regards the presses they may be erected at convenient centres on railway lines.

Methods of ginning and pressing by merchants.

The seed cotton is purchased by the ginners mainly through their dalals or petty merchants who buy on the ginners' account or on their own account and then resell the kapas to the ginners whenever they like. In very rare cases the ginners only gin cotton of other merchants by charging certain rates per maund or bhar, but do not purchase and gin kapas on their own account. The resulting lint of the ginneries is sold to mill-owners or other cotton merchants as half-pressed bales. These merchants either send them in kutcha bales (half-pressed bales) or get them pressed in pucca presses according to their requirements.

In the two Khandeshes (East and West) the practice of ginning is a bit different from that of Gujerat insomuch so that there the ginners mostly gin cotton, not by purchasing kapas on their own account, but they gin kapas purchased by petty merchants by charging special rates per maund or bhar. But the ginning rates are generally higher than in Gujerat as the ginners form combinations usually. The ginneries seem to be more superfluous there than in Gujerat as the ginning season could be extended up to six months from November to April which is not the case in Gujerat on account of the late ripening of the cotton crop, generally not before March. I am sorry I have not got definite figures with me, but I hope to be able to secure them before the Commission when I appear for my oral evidence.

As stated above, on account of the excess number of ginneries and the presses, the owners are obliged to form combinations in order to safeguard their own interests at the cost of the illiterate cultivators, who generally lose Rs. 5 per pucca bale or Rs. 10 per khandi of lint.

Suggestions and remedial measures

In order to check this unnecessary rivalry among merchants at the cost of cultivators and at the same time locking up such a large capital which could well be utilized by organizing other industries so urgently required in the country, such as oil mills, glass factories, tanneries, potteries, etc., it is quite necessary that Government should intervene in controlling these industries, specially of cotton gins, over-running the country in the real interest of the agriculturists. I therefore take the liberty of suggesting that Government may authorize the district magistrates to allow a ginnery to be erected and started for work if he is fully convinced of its need in the locality where it may be proposed to be erected by the merchant.

As for the existing excess factories and presses, I beg to suggest that a committee with the Collector as Chairman be appointed for each of the cotton growing districts with powers either to ask the owners to utilize them for other special purposes or for removing them to newly opened cotton tracts in the Kaira and the Panch Mahals Districts.

If the above is not found feasible by Government or Commission, they should be prohibited from joining into combinations by a special enactment, so that they will be obliged either to shift the factories or keep them closed as it will not pay them.

And lastly by starting co-operative ginning and ginneries, but this will require a long time to train up the agriculturists before they take to this advantageously.

STATEMENT A.

*Statement of Ginning Factories and Presses in Gujerat, N. D.*

| Place. | Number of Factories. | Number of Gins. | Place. | Number of Factories. | Number of Gins |
|---|---|---|---|---|---|
| *Surat District.* | | | Kabilpore .. | 1 | 24 |
| Kim .. | 1 | 26 | Jalalpore .. | 1 | 24 |
| Do. .. | 1 | 26 | Do. .. | 1 | 30 |
| Do. .. | 1 | 30 | Sisodra .. | 1 | 28 |
| Sayan .. | 1 | 24 | Bardoli .. | 1 | 24 |
| Do. .. | 1 | 20 | Do. .. | 1 | 30 |
| Do. .. | 1 | 28 | Do. .. | 1 | 41 |
| Sandhier .. | 1 | 24 | Madhi .. | 1 | 24 |
| Olpad .. | 1 | 24 | Surbhon .. | 1 | 32 |
| Do. .. | 1 | 16 | Mota .. | 1 | 30 |
| Do. .. | 1 | 10 | Kamachod .. | 1 | 24 |
| Rander .. | 1 | 28 | Buhari .. | 1 | 24 |
| Surat .. | 1 | 44 | | | |
| Sania .. | 1 | 30 | Total .. | 26 | 691 |
| Ashtagaon .. | 1 | 26 | | | |

| Place. | Number of Presses. |
|---|---|
| *Surat District.* | |
| Surat .. | 4 |
| Jalalpore .. | 1 |
| Kim .. | 2 |
| Bardoli .. | 2 |
| Total .. | 9 |

| Place. | Number of Factories. | Number of Gins. |
|---|---|---|
| *Ahmedabad District.* | | |
| Bavla .. | 4 | 126 |
| Dholka .. | 2 | 54 |
| Dhandhuka .. | 4 | 86 |
| Ranpure .. | 3 | 68 |
| Dholera .. | 2 | 60 |
| Barvala .. | 2 | 40 |
| Sanand .. | 5 | 139 |
| Ahmedabad .. | 1 | 6 |
| Do. .. | 1 | 20 |
| Do. .. | 1 | 62 |
| Do. .. | 1 | 14 |
| Do. .. | 1 | 30 |
| Do. .. | 1 | 8 |
| Dhanchi .. | 1 | 28 |
| Viramgam .. | 4 | 289 |
| Datroj .. | 1 | 28 |
| Patri .. | 1 | 32 |
| Mandal .. | 2 | 80 |
| Total .. | 37 | 1,170 |
| *Panch Mahals.* | | |
| Godhra .. | 1 | 14 |
| Derol .. | 1 | 40 |
| Do. .. | 1 | 32 |
| Total .. | 3 | 86 |

| Place. | Number of Factories. | Number of Gins. |
|---|---|---|
| *Kaira District.* | | |
| Kapadvanj .. | 1 | 10 |
| Uttarsanda .. | 1 | 10 |
| Nadiad .. | 1 | 4 |
| Do. .. | 1 | 22 |
| Mehmedabad .. | 2 | 20 |
| Kaira .. | 1 | 4 |
| Thasra .. | 1 | 10 |
| Dakore .. | 1 | 24 |
| Sarsa .. | 1 | 8 |
| Umreth .. | 3 | 76 |
| Anand .. | 2 | 45 |
| Total .. | 15 | 233 |
| *Broach District.* | | |
| Jambusar .. | 1 | 66 |
| Do. .. | 2 | 70 |
| Broach .. | 6 | 393 |
| Palej .. | 10 | 474 |
| Chamargam .. | 1 | 30 |
| Ankleshwar .. | 1 | 82 |
| Do. .. | 1 | 36 |
| Hansot .. | 1 | 32 |
| Ilav .. | 1 | 60 |
| Amod .. | 1 | 54 |
| Do. .. | 1 | 18 |
| Total .. | 26 | 1,315 |

| Place. | Number of Presses. |
|---|---|
| *Ahmedabad District.* | |
| Ranpure .. | 1 |
| Dholera .. | 2 |
| Ahmedabad .. | 3 |
| Viramgam .. | 2 |
| Patri .. | 1 |
| Total .. | 9 |
| *Broach District.* | |
| Jambusar .. | 1 |
| Broach .. | 4 |
| Palej .. | 4 |
| Ankleshwar .. | 1 |
| Total .. | 10 |

*(Mr. B. M. Desai did not give oral evidence.)*

WITNESS No. 342.

MR. S. B. DESAI, *Proprietor, Messrs. Kulkarni Brothers, Suppliers of Rani Pens, Bombay.*

WRITTEN EVIDENCE.

*Q.* 1. No.

*Q.* 2. No. We do not know.

*Q.* 3. No.

*Q.* 4. We have no such experience.

*Q.* 5 (*1*). May be granted wherever required.

(*2*) Bounties may be given in case a factory is being beaten in competition.

(*4*) Loan without any interest.

(*5*) Should be given on hire system.

(*7*) Yes. Guaranteed purchase of the surplus output that may remain unsold.

(*8*) Exemption from all taxes and duties on all raw materials such as metal, paper, etc., nd exemption of income-tax on the profit.

*Q.* 13. Support should be extended in accordance with the merit of the article.

*Q.* 17. Government experts should be easily accessible and their advice should be given ee of all charges and even expenses if ever required.

*Q.* 30 (*a*). Yes. Industrial exhibitions are advantageous in respect of the circulation.

*Q.* 32. Yes. The Government policy should be to hold exhibitions solely with the pure iotive of encouraging the Indian industries.

*Q.* 37. Yes. With a view to invite Indian industries to manufacture similar articles n India.

*Q.* 38. Government should not purchase any foreign stores similar to those manufactured n India.

*Q.* 44 (*a*). Yes.

(*b*) Practical instructions were imparted to labourers and workmen, but those that have eceived primary education were able to accept the instructions more easily than those that ere totally illiterate.

*Q.* 45. Primary education and practical training.

*Q.* 47. We have no experience of any such schools.

*Q.* 49 (*a*). All such schools tend to help the labour class in obtaining the efficiency in heir work.

(*b*) By way of opening such schools free.

*Q.* 79. Such libraries should be established at least at each presidency town.

*Q.* 85. Yes. Should establish such journals or assist and encourage those that are lready established.

*Q.* 86. Small books, worth about half an anna or so, should be written in the vernacular f the province, embodying the outlines of cottage industries, which may either be sold or istributed free.

*Q.* 89. Yes. There may be many products and our pens are one of them, which only eserve to have a Government certificate of quality.

*Q.* 97. They hinder the industrial development to a great extent.

Cheapest possible rates for railway and steamer freights should be imposed on railway nd steamer companies.

**The Rani Pen Factory.**

This factory is only in its infancy and can hardly be termed other than a cottage industry, he output being only from one thousand to fifteen hundred gross per month. My present equirements to increase the factory are the advice of experts free of all charges, the Government upport by way of purchasing articles to the fullest possible demand, and certain custom oncession in the conveyance of raw and manufactured articles.

The factory is worked with hand-power at present. If any other power is advised by the experts, loan without interest will also have to be sought for from the Government. The nibs have been brought to the present state of perfection by mere trials and experiments, without the least assistance or advice from a professional man. The greatest difficulty experienced at present is the abnormal increase in the prices of brass-sheet, card-board, label printing, etc.; but I am not in a position to suggest a remedy for it.

*(Mr. S. B. Desai did not give oral evidence.)*

---

## WITNESS No. 343.

Mr. T. R. D. Bell.

## MR. T. R. D. BELL, *Conservator of Forests, Southern Circle, Bombay.*

### WRITTEN EVIDENCE.

### *Financial Aid to Industrial Enterprises.*

Methods of Government assistance.

My opinions are that money grants-in-aid, loans on ordinary interest or, in very rare cases, depending upon the character of the person or company concerned, the supply of machinery and plant on the hire-purchase system are the best methods by which Government can aid existing or new industries.

In all cases where the money involved in the aid is considerable, there should certainly be Government supervision; in extreme cases (where value very considerable), control.

In extreme cases, Government should appoint directors; in cases where the aid is of considerable value there should be Government audit.

Pioneering industries.

I have not had experience of Government pioneer factories but had to do with an experiment instituted by Government to see if rubber could be grown in Kanara. The experiment was ordered to be carried out at the request of the Bombay Chamber of Commerce. My opinion is that it was far better to have it carried out by Government than to have allowed it to be done by any firm or company.

I am strongly of opinion that, in forest matters, where all the material involved is the undisputed property of Government, all pioneer industries involving produce from the property and to be carried on in Government forest or in its immediate vicinity, should be initiated by Government itself and, especially, in the case of new industries should this be done.

In cases where Government are of opinion that any such industry should be handed over to private enterprise, it should only be thus handed over after it has been proved to be a going concern with a future before it.

In all cases where a concern has been proved to be a success, the full commercial value of the plant involved should be recovered plus some percentage of the value of the produce turned out, for a series of years to be fixed in each case after the transfer had been effected. Concessions might be made in the matter of ground-rent or land might be given free on long lease—but all this would naturally depend upon circumstances.

Limits of Government assistance.

In aiding private enterprise, it is of primary importance first to make sure that such aid will not discourage fresh undertakings; ordinarily, certainty can only be arrived at by very local inquiry. A great deal of harm may be done by unconsidered aid.

### *Technical Aid to Industries.*

Loan of experts.

It seems to me that there should be no objection to loaning Government experts to private firms or companies in this country, at the present day. They might be loaned on condition of their pay and allowances being disbursed by the firm or company—in cases where Government found it desirable further to encourage the concerns, they might themselves bear part of the expenditure. In no conceivable case can I imagine that it would be right to allow publication of results of researches made by such expert while in the employ of the firm or company except with the knowledge and consent of such firm or company.

Government should start certain industries.

There are a good many forest industries which, in my opinion, should be started by Government in Bombay. There is the destructive distillation of wood for example—we know nothing about it at all,—extraction of tanning products from barks, fruits, leaves of different plants, the manufacture of good charcoal to enable us to utilize the timber of inferior species of trees that at present command no market, and the manufacture of pulp from bamboos. To allow private firms or companies to start such concerns is only to throw money away which I consider Government has no right to do in any case. There are other reasons also why Government should pioneer such businesses in this country.

Research.

It is sufficient in my opinion that all research should be carried on out here. The men, however, who are entrusted with the research should have facilities for referring to work done at home and in other countries when necessary, both by correspondence and by personal visits to those countries. They should be Government servants subject to special rules.

**Surveys for industrial purpo**

In the present state of research and development in India, new surveys are unnecessary. What is known already in the matter of forests is so badly neglected that, in that one province, any further survey would only be waste of time until much more has been done to make use of the knowledge already acquired.

### *Assistance in Marketing Products.*

**Commercial museums.**

Museums of all sorts are extremely useful and India is, in this respect, in its first infancy. Neither Bombay nor Madras possesses one of any sort worthy of the name. Their importance from an educational point of view cannot be too much insisted on. Every town of importance should have one at least, to supplement ordinary education. I do not know what is meant by a *Commercial Museum* exactly, but, of course, museums should be increased in number.

**Commercial ag**

What we want in the Forest Department is a commercial agent who would go about pushing forest products in the country itself. He would find out what sort of timbers are wanted, and where, and in what quantities, and he would try and introduce others where a demand might be created. He would have to be a man with forest as well as commercial knowledge.

**Lists and exhibitions.**

Lists of imported articles used by Government departments would be of little use without exhibition in museums. The exhibition idea is a good one.

### *Other forms of Government Aid to Industries.*

**Supply of raw materials.**

The conditions that should control the supply of forest products on favourable terms are—

(i) Government should not throw money away; there can be no sense in handing over valuable produce to private firms or companies for much less than its market value. Government is bound to work its forests for the public benefit and, therefore, should work them in the most economical and efficient way possible.

(ii) If, by any chance, Government should decide to grant concessions in forest produce, these should not be granted without a very thorough prior investigation. In the past, firms have been given concessions which have resulted in more or less wholesale diversion of public money to private firms. I know of a certain trading company which makes the most absurd profits at the expense of the public. There is, in my opinion, no excuse for this.

(iii) Departmental work is invariably cheaper for the public than work by contractors and, in forest matters, this is very important. I estimate that, taking into account the pay of all establishments, Government lose 50 per cent. of profit by purely contract work. This is the almost invariable rule. There is no reason or sense in incurring such loss.

### *General Official Administration and Organization.*

**Director of Industries.**

A Director of Industries should be appointed in each province. I do not think a Board of Industries would work well. The Director should be by preference a businessman with commercial knowledge. He should find out what industries could be developed, try and organize them, give any information that might be required by individuals for that object, publish statistics, etc., etc. In forest matters there should certainly be a commercial agent, probably one for each circle, to discover markets for good timbers at present more or less unsaleable, to push others and make inquiries likely to lead to the better disposal of minor products which are at present practically given away; to hold auction sales if necessary, etc.

### *Organization of Technical and Scientific Departments of Government.*

**Scientific Departments.**

The only technical department in the Bombay Presidency that might give assistance to industries is, as far as I am aware, the Agricultural Department and I have no doubt it does give assistance. But I know little about it.

There is no doubt whatever that there should be Scientific Departments for zoology, chemistry, botany, etc. I believe that an Imperial Zoological Department has already been sanctioned. But it is the first; and it is high time a beginning were made. The constitution of each department would be simple at first—there are plenty of examples in other countries. They will expand automatically quickly enough.

**Forest experts.**

Forestry is, at any rate, one subject for which local Governments should engage their own scientific experts. They would be called research officers. The Government of India already has such at Dehra Dun but that is not sufficient. Each province that possesses a Forest School should also have research officers. All research, however, should be co-ordinated and Dehra Dun might direct the provincial operations in the matter of final apportionment of work. The actual control of the men would remain provincial under the Director of the School.

Forest experts should be employed on the same terms as any other Forest Officer and should rank with them as in Dehra.

Study of foreign methods

All encouragement should be given to Government technical and scientific experts to study conditions and methods in other countries. At present no encouragement is ever given.

*Other forms of Government Action and Organization.*

Development of communications.

In the matter of forest communications, both by road, rail and, in some cases, by water also, the development has been, and is, very slow. I have plenty of specific recommendations to make and have made most of them already to Government.

There are railway extensions necessary and they have been reported to Government and are under consideration for Kanara District.

Waterways are also under investigation in Kanara where, only in forest matters, they are of importance.

orest Department in Bombay.

Industrial enterprise has not touched the Bombay forests as yet. There is, notwithstanding, plenty of scope. Bamboo pulp has of late attracted some attention and an application has been made for concessions by a firm in Bombay which I look upon as altogether excessive. There are plenty of bamboos and the making of paper pulp from them would certainly pay well. Tanning products are plentiful also, both in the shape of bark and fruits; also, possibly leaves. We have some idea of the resources in weight and measurement. The question of starting a tannin extract plant at Khanapur in Belgaum District has come up but nothing has yet been settled. Our forests also yield silk cotton, *Nux vomica*. *Pongamia glabra*, *Schleichera trijuga* and *Hydnocarpus* fruits for oil; there are many fibres, gums and scent-producing plants besides; cinnamon bark and leaves, wild nutmeg and mace, wild turmeric, madder, etc., etc., which we practically get nothing from because of the dilatory and desultory manner in which they are collected by local contractors who pay next to nothing for the right. Research would probably discover many things now unknown. Some sort of departmental experiments in collecting all these should be made—nothing will ever be done otherwise.

What is wanted to reduce the cost of collection is systematic working with good supervision for some years and a considerable development of forest roads and bicycle paths and inspection paths.

Special kinds of trees are concentrated in limited areas in Sind: the Babul, Bahan and Kandi (*Acacia*, *Populus* and *Prosopis*) as well as Tamarisks of various species. *Casuarina equisetifolia* grows on limited areas on the coast of Kanara. Few other species grow pure in this Presidency.

### ORAL EVIDENCE, 28TH NOVEMBER 1917.

*Mr. C. E. Low.*—*Q*. Have you found any wood for making bobbins?—*A*. I think Mr. Pearson, Imperial Forest Economist at Dehra Dun, deals with these questions about bobbins and all that sort of thing: I have nothing to do with the commercial side. I know very little about it.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q*. In regard to Government aid to industries you say that Government should not throw away their valuable forest produce for much less than their market value: but don't you think some concessions should be made in the beginning to new industries when they are started, and until they are established?—*A*. I do not refer to particular money concessions, but I think that, as we are generally working absolutely in the dark as compared with commercial people who apply for wood and such concessions, it is not an equal contest.

*Q*. Do you think that, unless some concessions are given in the beginning, a new industry cannot be started, and that some concessions ought to be given to make it pay?—*A*. I quite agree that concessions should be given, but it all depends on the value of them.

*Q*. You think that the value of these concessions is very excessive?—*A*. Certainly I think in the case of some of them.

*Q*. Can you define what sort of concessions are the most practical, for instance, giving wood at a cheaper rate?—*A*. Yes.

*Q*. For what particular industry?—*A*. It so much depends. One cannot make any general statement.

*Q*. Do you know whether in the past the grant of such concessions to a private firm has affected the interests of Government adversely?—*A*. The Burma Timber Company is an example.

*Q*. I was thinking of this province?—*A*. No, I was thinking particularly of the Burma Company.

*Mr. G. A. Thomas.*—*Q*. You are not in favour of any forest industry being started by a private concern; do you think that Government ought to start forest industries?—*A*. Yes.

*Q*. You suggest something like this, I understand; that Government should purchase the plant and get some private company to run the concern, sharing the profits with them?—*A*. Government should have absolute control over the concern until they find out exactly the commercial value of the products turned out.

*Q*. Government should supply the raw material?—*A*. Yes.

*Q*. And the plant?—*A*. Yes.

*Q*. And the company should run it and should share the profits with the Government?—*A*. Yes.

*Q*. Supposing instead of profits you had losses, would the company share the losses too with the Government?—*A*. Government should bear the losses.

*Q*. If the factory proved successful, it would be handed over to the company at the total cost of the plant less depreciation?—*A*. Yes.

*Q*. Well, don't you think that such an arrangement would be very much in favour of the company and disadvantageous to the Government?—*A*. No, I think it would be to the advantage of the Government in the end.

*Q*. But you want the Government to bear the whole risk?—*A*. They are better able to do so than a company, and from the public point of view I think they ought to do it.

*Q*. Do you think they ought to speculate with public money?—*A*. It is not exactly speculation.

*Q*. But they won't be able to say beforehand whether the industry is most likely to pay?—*A*. Of course, few new things are quite certain to pay.

*Q*. Talking about experts, you say, "no conceivable case could of course arise.....etc., etc." Supposing there were 20 firms or so in the same industry, and that each one had the same problems to solve and each one wanted the Government expert to come and conduct the same research work; if the Government expert conducts research in the first instance, that result would be the property of the firm for whom he has worked: then he has to go through the same process with other firms if they wanted his services: would it not be more economical if the results of that research were published and made public property in the first instance?—*A*. Certainly not.

*Q*. Do you think that the firm would not agree?—*A*. They would certainly object if you were to publish the results.

*Q*. Then the same expert should go round 20 or 25 firms and conduct the same experiments time after time?—*A*. Yes, certainly, if necessary.

*Q*. Don't you think that it would be a waste of energy?—*A*. It might be waste of energy, but the company would object as it would injure their interests.

*Q*. Supposing this expert had been conducting some amount of research work on behalf of Government in a Government laboratory, and supposing he had carried his research to a certain point, then if his services were engaged by a firm and he continued the same research work and reached a definite conclusion, don't you think that the Government and the public are entitled to the results?—*A*. If he were lent to a private firm for research work it would not affect the question; he would probably not continue that particular research work and would not conduct it in their laboratory. Or he would go on with it in their laboratory, and the result would belong to the company alone unless Government and the latter agreed to publish results.

*Q*. If he merely arrived at the same result for several companies?—*A*. If he had information on past research done by him he would naturally say so and not repeat the same work. It would again be a matter for settlement between the company and Government whether results should be communicated to the latter; whether they should be kept secret or whether the expert should be lent at all. If Government do not want him to publish the result, I suppose he would not do it.

*Q*. Or if the company do not want him?—*A*. I do not think it would be fair for the man to give away the secrets belonging to a company if he were employed by them.

*Q*. What is your idea of this commercial agent you refer to: is he to be in the Forest Department?—*A*. He is to be in the Forest Department, that was my idea.

*Q*. How is he to be trained: should he have forest training as well as commercial training?—*A*. Yes.

*Q*. Will he be primarily a forest man or a commercial man?—*A*. One could get a commercial man and give him a certain amount of forest training.

*Q*. Can you find such a man at present?—*A*. No.

*Q*. How would you produce such a man if you cannot get him at present?—*A*. You could select him and put him into the post and he would gradually get training; that was my idea.

*Q*. Do you propose to have a regular commercial side to the Forest Department?—*A*. No, not except in that way.

*Q*. What about engineering? You have a forest engineer, have you not?—*A*. Yes.

*Q*. What about a forest economist?—*A*. We should have research officers for that.

*Q*. At Dehra Dun?—*A*. No, we should have them in the Presidency.

*Q*. Your idea is that they should not be located at Dehra Dun?—*A*. We want one here in the province: one man at Dehra Dun cannot do the work for the whole of India.

*Q*. So you would have an institute for each province very similar to that at Dehra Dun and they would all more or less, so to speak, be affiliated with the Dehra Dun institute which would be the central institute?—*A*. Yes.

*Q*. And that arrangement will prevent overlapping?—*A*. Yes.

*Q*. But this commercial agent would not be attached to any central department; he would be under the conservator?—*A*. There would be no necessity for putting him under any central department.

*Q*. Have you any experience of plantations?—*A*. Yes.

*Q*. What has been the result of the different plantations that have been carried on?—*A*. Chiefly they are neglected. We have a plantation down in Kadra (Kanara), and it is not paying simply because of neglect. Casuarina plantations pay splendidly.

*Q*. If you can have successful teak plantations and successful casuarina plantations, cannot you have successful plantations of other kinds of trees?—*A*. Yes.

*Q*. *Bombax malabaricum* for instance?—*A*. Yes, but it won't grow freely in hilly country; it grows on the hill borders.

*Q*. A suggestion has been made that Government should have plantations of such trees for such industries as bobbins and matches: do you think this is feasible or practicable?—*A*. I am afraid we have no place in Bombay where we can do it.

*Q*. In the Himalayas for instance?—*A*. There may be places up north. I do not know; I am not well acquainted with the north, but it grows only sporadically here.

*Q*. Does it not occur in the forests here?—*A*. Not in sufficient quantity.

*Q*. You cannot make it grow?—*A*. It will not grow pure.

*Q*. You can make a pure plantation of *Bombax*.—*A*. That would not pay.

*Q*. If you take arable land and grow it?—*A*. I do not think it would pay either; you could grow crops more profitably.

*Q*. You could grow it in conjunction with crops?—*A*. No, you could not grow any tree in conjunction with crops.

*Q*. It is practicable to have plantations on a large scale, but the only objection in a matter of this kind is the cost?—*A*. Yes, that is the case.

*Q*. And you think that the cost would be prohibitive?—*A*. It depends altogether on what the plantation is for, and what the forest is like and all the rest of it.

*Q*. I mean *Bombax* for example.—*A*. I do not believe for a moment *Bombax* would grow pure.

*Q*. It does in the Himalayas?—*A*. Conditions up-country are very different to what they are down here.

*Q*. You have not any experience: they have tried *Bombax* plantation in Ahmedabad. Have you seen this?—*A*. No. One of the great dangers in growing trees pure is damage from insects; they sometimes ruin them altogether; fungus and insects are two of the things that have to be guarded against.

*Q*. One of the difficulties in the way of starting industries connected with forests is the cost of extraction: is it not possible to have different saw mills for sawing the wood at the point where it is cut and to remove it afterwards?—*A*. Yes, we have got a saw mill in Kanara, it will increase the revenue.

*Q*. Are there any other saw mills?—*A*. Not yet, the first was only an experiment that we made and it has been running now for eight years. We get a very large revenue from this.

*Q*. For instance, suppose you have one particular kind or two kinds of wood for a match factory, how much do you think that one of these saw mills could supply?—*A*. We could supply the inferior species that they use for matches but not so as to pay. There are two species. They grow scattered all over the jungle. I should have thought however that the best wood for matches (and it will grow luxuriantly) is the poplar; it is not a wood that they seem to have tried.

*Q.* Where does it grow?—*A.* It grows in Sind, it grows absolutely like grass on the banks of the Indus.

*Q.* Another question which seems to be standing in the way of the Forest Department is labour: have you ever experienced difficulty in connection with labour?—*A.* A great deal.

*Q.* If large industries are started in these areas, how would you get over the labour difficulty? Would you have to import it?—*A.* One of the main objections to large industries coming into the forests controlled by Government is the labour supply. In Kanara Government require at present all the labour they can get in the district and as much more has to be obtained from outside; Goa, Sawantwadi, etc. The introduction of any new industry, such as paper-pulp manufacture for example, would immediately result in scarcity of labour to an extent which would probably cripple altogether the working of the timber and firewood, both of which are departmentally extracted. Rates for labour would rise quickly to double what they are at present, although that would perhaps be surmountable. The actual failure of the labour-supply, however, would not.

*Q.* I suppose labour can be got from outside if it is paid for adequately?—*A.* I doubt it.

*Q.* Even if you offer more wages?—*A.* We do now, but we do not get as much as we want.

*Q.* Could you not get it by giving higher rates than you do now?—*A.* Our rates are high now; we have had to double them practically in the last eight years.

*Q.* Is it not possible to use the criminal tribes?—*A.* We have tried that, but men won't come in large numbers. They employed 100 men last year and they hope to get 500 this year on paying them higher rates, *i.e.*, paying these criminal tribes higher rates than to our trained workers.

*Q.* What are criminal tribes getting a day now?—*A.* Eight annas a day. We pay our men seven annas.

*Q.* Who is to blame for that?—*A.* Government.

*Q.* You mean the Forest Department?—*A.* No, we have nothing to do with it; it is the police who fix the rates, the police and the collector.

*Q.* I suppose they help you with labour-supply?—*A.* That is one of the means we tried. We have tried many means to increase the labour-supply.

*Q.* I suppose increase of communications means increase of labour?—*A.* Of course.

*Q.* It means labour will be easier to get?—*A.* Yes.

*Q.* That will certainly help to solve the labour difficulty?—*A.* Yes. Eight years ago our revenue was about 16 lakhs; we have built a lot of roads since then and this year the estimate is 27 lakhs for the same area, though it might be 50 lakhs.

*Q.* How much has expenditure increased in that period?—*A.* The proportion of expenditure to gross revenue is less than it used to be. Generally speaking, expenses come to about 46 per cent. of the gross revenue including establishment and everything else, in the most favourable cases.

*Sir D. J. Tata.*—*Q.* In regard to the pioneering of industries at the end of the second paragraph of your note, you say: "I consider it is throwing money away to allow private firms to start industries. There are other reasons why Government should not pioneer industries." What are the other reasons you suggest?—*A.* There are reasons, but I would rather not refer to them.

*Q.* With reference to this poplar which you say is suitable for making matches, have any experiments been made as to its suitability?—*A.* I am not certain whether it has ever been tried. I thought they should try it.

*Q.* You think it should be tried?—*A.* It is a good wood.

*Q.* What makes you think so?—*A.* Because the sort of wood that they use for matches is very like this.

*Q.* Has it been reported on or sent to a Government laboratory for experiment?—*A.* I do not think so.

*Q.* How would the general public use it when you say that nobody has tried it?—*A.* Everybody knows that it is one of the species, with some of the requisite qualities.

*Q.* It is not in your Circle?—*A.* It grows in Sind along the Indus in Sukkur.

*Q.* What is its name?—*A.* *Populus euphratica.*

*Q.* Is it not one of the species you see in Kashmir? Is it not the same?—*A.* No, it is not that. I think it exists in Persia and in this country. In Sind it could be grown largely and with ease; it grows there very freely, and grows very fast.

*Q.* Could you use the whole of the wood? In the case of some trees they have to throw away some parts?—*A.* I think you could use the whole of it; it is about the same all through.

*Q.* With regard to the supply of raw material you say, "if by any chance Government should decide to grant concessions of forest produce, this should not be granted without a thorough investigation." Investigation of what—investigation by Government as to whether it gains by giving it?—*A.* That is what I was thinking. Concessions are occasionally given without sufficient investigation.

*Q.* You mean to say that Government should not be put to loss?—*A.* I mean the public should not be put to loss. Concessions of public money are neither fair nor moral. Government are trustees of public money.

*Q.* You mean that firms get hold of these at low prices?—*A.* Yes, at the very lowest price that they can possibly obtain.

*Q.* You wish that these should be sold at a fixed price?—*A.* Yes, they ought to be.

*Q.* Is it not now sold after thorough inquiry at fixed prices? You don't know.—*A.* Nominally Government do, but in many instances the price paid is an absurdly low one.

*Q.* How is it that they get it at this low price?—*A.* I do not know; I have nothing to do with these things. Of course, they do their very best to get as much value as they can.

*Q.* The officials who are concerned with the growing of these things must know the real value?—*A.* I doubt it; they probably have not the faintest idea.

*Q.* You have made a statement here, you must have some reason for it?—*A.* Yes, I have. But what I was considering was this particular pulp business; we have not got the faintest information as to what is the value of the thing, the real commercial value.

*Q.* Then that is merely a conjecture. You don't know whether it is really so valuable?

(*Turning to the President*) May I suggest that, if witness wants, anything that he says on this point may be considered confidential? Perhaps then he might like to say something.—*Witness.*—No, I do not want to say anything more. I have no knowledge of commercial things.

*Q.* With regard to paper pulp, has any company undertaken the business?—*A.* I once heard that a company here carried out experiments with bamboos of different sorts; what I gathered was that they knew that it would make very good pulp for the paper industry. They say further experiments would have to be carried out, and they are trying to get things as cheap as possible.

*President.*—I understand that a concession has not yet been granted to the firm, and there is no promise of any concession, the terms have not been settled?—*A.* It was only the proposed terms that I was criticizing.

*Q.* Are you at liberty to give some idea as to the kind of terms that should be granted for a concession of that sort?—*A.* No, you could not do so off-hand; one would not do so without detailed inquiry.

*Q.* Can you indicate any method by which Government could determine the kind of terms suitable to this case? We have got in regard to mineral concessions an arrangement by which royalty is paid, dead rent is paid, surface rent is paid, and there are certain other conditions of the kind attached to the work. Can you in the same way draw up suitable terms to guide Government in granting concessions for the development of forests for paper-pulp?—*A.* I daresay one could. It would have to be worked out.

*Q.* You are not prepared now?—*A.* No.

*Sir D. J. Tata.*—*Q.* Then you propose that Government should carry out all forest industries themselves, and keep specialists for it?—*A.* The forest being their own property, it would, in my opinion, be advisable that Government should start a paper-pulp factory if it is ever undertaken and not a private firm.

*Q.* Because private companies who work these things might get too much profit? Is that your idea?—*A.* Yes.

*Q.* Towards the end of your written evidence you say that encouragement should be given to Government technical and scientific experts to study conditions and methods in other countries. How—by giving study leave?—*A.* I say that particularly with regard to ourselves; we have often wanted to go and study methods of transports, mechanical transport, and to get more information on such matters, but we have never been allowed to do so; we know nothing as to what is going on in other countries in such matters.

*President.*—*Q*. There are study leave rules in the Forest Department, aren't there? —*A*. Yes, there are.

*Q*. Which enable you to go away for a year and study a subject?—*A*. Yes, but generally when an application is made for permission to go it is refused, because of shortage of men. The Department has always been understaffed.

*Q*. Have you ever applied for study leave?—*A*. No.

*Q*. So you cannot grumble at this rule?—*A*. It is not a personal matter; men ought to be available.

*Sir D. J. Tata.*—*Q*. Would the manufacture of paper-pulp from bamboos pay?—*A*. It would certainly pay well.

*Q*. I presume if Government undertake it?—*A*. I think it would pay everybody concerned.

*Q*. Government as well?—*A*. That is my opinion based on a certain number of facts.

*Mr. C. E. Low.*—*Q*. Is charcoal manufactured in any kiln in Bombay or in your Circle for supply to Bombay City?—*A*. I believe not, at the present moment. Poona receives a certain amount from the Forest Department.

*Q*. Are there any prospects of its doing so?—*A*. I cannot tell what are the prospects; the Bombay charcoal has been up to the present mainly manufactured practically in Thana; it is about the only centre; we have been trying to develop this industry and get men to take up charcoal making in the south in the last two years; we do sell certain trees and coupes for the manufacture of charcoal, and a good deal I hear now is taken to Poona.

*Q*. Is there any attempt made in preparing charcoal to preserve the by-products, and is any arrangement made in that for destructive distillation?—*A*. There is an Indian in the Satara District—I believe he has now gone to Mysore, who started a plant for destructive distillation and he said that he made money out of it. But I do not know whether he did or not.

*Q*. Do you think that it is worth while taking up an investigation into destructive distillation on a really large scale?—*A*. I should say certainly.

*Q*. And the investigation of by-products?—*A*. I should say certainly it is.

*Q*. Has any investigation been proposed?—*A*. We thought we had better have experiments first. I believe a certain amount of distillation has been done at Dehra Dun, but that was only on a small scale, not in the jungles.

*Q*. Your idea of utilizing this poplar in Sind I take it would be to establish a central factory up there which would cut wood to make matches?—*A*. Yes, I think that would be a good thing; of course you can get the wood practically pure and you can get square miles of it in the north.

*Q*. And then it will be made up and sent out to local match factories?—*A*. I suppose so.

*Q*. You save in freight; there is a great deal of difference between the freight on raw wood and that on manufactured wood ready for making matches, and you might then run the factory much more cheaply?—*A*. I suppose so.

*Q*. I suppose you have the ordinary system of forest villages for supply of labour? —*A*. The question has gone up to Government; they have more or less agreed; it has been proved to be sound in many parts of India and it is likely to be sanctioned, and I believe we can go ahead now. I think it will be a very good thing.

*Q*. What is their objection to that?—*A*. Lack of consideration principally I think.

*Q*. There has never been a forest adviser to the Government at all?—*A*. No.

*Q*. You would not be prepared to give more favourable terms to a man who makes something of the wood than you would to a man who would sell it to somebody else?—*A*. Yes, I think I would.

*Q*. You said in answer to Sir Fazulbhoy that you were working in the dark, ignorant of what a company might make of it: would it not be one of the businesses of your commercial agent to study things of that sort?—*A*. I think he would probably know something about commercial matters, we do not.

*Q*. How would you recruit your commercial agent; would he come from the Forest Department?—*A*. I should think probably a commercial man would be the proper person if you teach him a little bit of forestry.

*Q*. What is the result of this experiment in rubber planting in South Kanara?—*A*. The result was that it was not successful; only a few trees remain now; you cannot grow rubber in a place which is too subject to long draughts.

*Q.* How does the rainfall there compare with the areas where it grows freely?—*A.* Places where it grows very well have practically rain every month of the year. South Kanara has about five months' rain; there is much more rain in the district of Malabar.

*Q.* Probably because it is on the coast?—*A.* It is perhaps on a higher level; I think that is the reason why they get monthly rain in the hills; they get some rain every month, and so the place never dries up to the same extent as it does with us.

*Q.* Do you practise departmental extraction?—*A.* Big timber all goes out departmentally.

*Q.* Do you allude to ordinary coupes, not firewood coupes?—*A.* I am alluding to high forest big timber fellings.

*Q.* And you have always done that departmentally?—*A.* Always.

*Q.* Do you know what is the practice in other provinces where there are high forests?—*A.* I believe that, of late years, the tendency has been to increase departmental working of the forests.

*Q.* Do you think that the transport of big timber here could be materially cheapened?—*A.* Yes.

*Q.* You are aware, aren't you, that the Indian Forest Department presents problems which those of other countries do not owing to the absence of a fairly continuous supply of water in the rivers?—*A.* Yes.

*Q.* On what lines do you think development might be successful and helpful to trade?—*A.* We started more or less with everything wanting; we want more roads, in one or two cases we want railways, they have been more or less dealt with already by Government; and we tried the improvement of one of the big river channels in Kanara, but I think improvement in this direction would be too expensive, and cannot pay.

*Q.* Well, you could bring any amount of timber in the rains?—*A.* Not much; it is hard to keep it going straight, and it would get washed up on the shore.

*Q.* Do you think that you would get any advantageous help from a man who is used to dealing with forest transport in places like British Columbia?—*A.* No.

*Q.* Probably it is different?—*A.* Absolutely different.

*Q.* Have you any form of mechanical traction?—*A.* Yes.

*Q.* Mono-rail?—*A.* Yes.

*Q.* Are they of much use and easier to operate?—A. Not much use, but Government are now thinking of building a railway of about 16 miles from the Dandelli forest head to Alnawar on the M. S. M. Railway.

*Q.* Then the question of railways is not a very difficult one and you could get a lot out by the railway; but they do it nearly all by carts, do they not?—*A.* Yes, they use buffalo carts.

*Q.* That is the cheapest way of doing it?—*A.* At the present time; of course a railway line will pay much better if we get one. The roads are bad and not metalled properly, so that in the rains they are impracticable and in ordinary times smash up the carts and damage the buffaloes. The distance is too great for dragging.

*Q.* Do you think that in this matter a forest engineer would be of assistance, not only for this but also for railways?—*A.* Yes.

*Q.* Have you got a forest engineer now?—*A.* Government has sanctioned a forest engineer.

*Q.* Is there any chance of his being recruited at present?—*A.* It might be possible.

*Q.* He would not be a forest man?—*A.* Just for the present, no; because we cannot get him; we are hoping that the Public Works Department would lend us a man.

*Q.* Where do you think your ideal type of man will come from?—*A.* We hope to be able to get a forest man with engineering training. We have got one forest engineer, a Mr. Underhill. He is an engineer by training. He is the only forest engineer in the whole of India at the present day. I do not know where he came from. He is on forest work; he had had experience of forest work before.

*Q.* You suggest that we should bring the forest research men down here, and you recognize the necessity of backing them up with a central research laboratory at Dehra Dun to carry on the work; Dehra Dun would not be of much help also unless it is more strongly equipped and also developed in greater detail?—*A.* I believe the Government of India have sanctioned an extension of the Institute now.

*Q.* For a simple research institute where you have got to deal with problems which outside people cannot possibly undertake, you have got to get a strengthened staff and especially men of the specialist type. The local men should be of more general type, is that your idea?—*A.* Yes, broadly speaking, that will be so.

*Q.* Then you recognize that the Dehra Dun Institute requires more considerable equipment than any provincial organization?—*A.* Yes.

*Sir F. H. Stewart.*—*Q.* With reference to the commercial agent you refer to, do you think that he should be a member of the forest staff?—*A.* I think it would be better.

*Q.* Permanent member or temporary?—*A.* Permanent.

*Q.* Could you get a suitable man?—*A.* Yes.

*Q.* He would not be eligible for the higher appointments in the Forest Department?—*A.* No, I think it would be better to keep him as a commercial man.

*Q.* He would then probably require special pay: do you think it would be better to put him under the Department of Industries to learn?—*A.* It might be useful.

*Q.* Similarly about your forest engineers?—*A.* That might be a temporary arrangement.

*Q.* You would like the engineer to be a temporary member of the forest staff?—*A.* Engineers might be lent, for example, by the Public Works Department, temporarily, but should be under the orders of the Forest Department when working for it. Or they might be permanent members of the department, specially trained and under special rules.

*Q.* With reference to communications, would ropeways be useful?—*A.* They would.

*Q.* You have not tried any?—*A.* We have not tried any.

*Q.* You have no information about them?—*A.* No, we have very little time to try experiments ourselves.

*Q.* That is also the case with other countries where they have ropeways; so it might be worth while having special experiments with ropeways?—*A.* Yes, it would certainly help. We have very little idea as to what sort of country they can use ropeways in.

*Q.* With reference to forest produce and small articles found in forests, is it your idea that Government should deal direct with the persons wanting them; suppose I want a certain kind of wood or something of that sort, is it your idea that I should be able to go to you and ask you to make that arrangement for me: do you want to eliminate the contractor?—*A.* No.

*Q.* Do you think he must continue?—*A.* As a matter of fact when I talk about departmental working, it is all done by contract. We own the produce from beginning to finish but engage contractors for all the cutting work, transport to depôt, shaping, etc., of timber and sometimes, even of fuel. We do not have a permanent labour staff of our own. We call this working departmentally. It would pay us better to have a labour staff of our own.

*Q.* I want to know whether it is profitable for the Government to work purely by contracts?—*A.* It is not. I can give you an example. A long time ago, when firewood was not as expensive as it is now and the roads were not built and everything was much more difficult in Kanara. I used to sell firewood at Rs. 5 a ton; we gave out contracts on the measured ton basis. The purchaser cut the wood, shaped it, brought it to the depôt and stacked it. It was then measured by us and handed over at Rs. 5 per ton of 100 cubic feet to him. For the same wood, that is, for exactly similar areas, we do not get, selling it standing; one quarter that price and have never realized that price since we took to selling it standing. And it will always be so.

*President.*—*Q.* What other countries are there that have these Imperial Scientific Departments which you refer to?—*A.* Japan; Russia and America; of course Germany and France.

*Q.* Do you know of any Scientific Department of the Imperial type in the United States for instance?—*A.* Yes, lots of them in the United States, and they are very thorough in everything they do.

*Q.* Do you know anything about the organization of these Scientific Departments?—*A.* Not much to talk of.

*Q.* You say here, "the Imperial Zoological Department is the first of its kind here in India"; in what way is it the first of its kind?—*A.* I mean to say in the natural science way, having some connection with forestry.

*Q.* Do you know the Botanical Survey of India, that is an Imperial Department too, about the same size as the Zoological Department, with about three men in each?—*A.* Yes.

*Q.* The Botanical Survey Department has done a fair amount of work too? That is also connected with forestry very intimately?—*A.* We have never yet found it of any use to us in the Forest Department. Very little is done or has been done in this country by Government towards the furtherance of knowledge of natural history compared to what might be done.

*Q*. So the Zoological Department is not the first of its kind; there are others. Your statement is not therefore quite accurate?—*A*. Not quite accurate from the point of view of general science, but accurate from the zoological point of view which is probably what I meant.

---

WITNESS NO. 344.

*Mr. R. D. Chandorkar.*

MR. R. D. CHANDORKAR, *Superintendent, Paisa Fund Glass Works, Talegaon.*

WRITTEN EVIDENCE.

Government assistance.

In our opinion any monetary aid in any form from the Government to factories, would be rather an hindrance than help to their progress unless it is given unconditionally. It is not the lack of capital which is the real obstacle in the successful running of the factories. No doubt, at times, capital is not advanced, as the capitalists are doubtful about the success of the factories and their dividends. Any aids, bounties or guaranteed dividends from Government for a limited period, would not convince the capitalists that the factory would run successfully for all time. The capitalists would be induced to hazard any sums if they can see that such factories are run successfully. So the right way to draw out capital is to demonstrate the commercial success of new industries by starting pioneer factories.

However guaranteed Government purchase of products and exemption from income tax and other taxes, would help the factory a great deal, not so much from a monetary point of view as by creating a favourable opinion with the public. So we recommend to the Government these two ways only of giving actual financial help in money; for any other kind of help would bring in Government supervision or control which would be an hindrance to the smooth working of the factories, at times.

Pioneer factories.

We have already pointed out that to start pioneer factories is a direct way to establish a new industry in India. The pioneer factory has to solve a number of subtle and difficult problems, *e.g.*, to create a liking among the labourers for the industry, to train them up, to convince the public of the quality of the manufactured article, and to compete with the foreign articles. All these problems are beyond the power of a private (individual or limited company) concern. Government can start pioneer factories but its pioneering would be very costly as men with mostly patriotic and self-sacrificing views would not join such factories, nor can the public be very easily persuaded to take up the industry. So we are of opinion that public bodies are most fitted to start pioneer industries and Government should help them in all ways possible.

Technical aid to industries.

As far as we know, no industry receives any technical and scientific aid from Government departments in our province, and at least the glass industry none. Government experts should be lent *unconditionally*; however the factory should be bound to return to Government a part of profits due to the services of the expert. The results of his researches may become the property of the factories if they would like to buy by paying the actual charges of the expert.

In this industry we would like to suggest bangle-making and pressed ware as branches, which Government in this province should demonstrate. The demonstration factories should be attached to the industrial schools, and apprentices from the existing factories should be admitted for receiving the training.

The proprietors of the factories feel a great difficulty in analysing the problems in the factory and offering them for research. They put their difficulties in their own way, while the men of science understand the difficulty if it is put in scientific terms. So, often a need is felt for an advisory council which would be easily accessible to the proprietors and which understand them on the one hand, and on the other offer these problems to able men for solution. Moreover, if such a council is formed of able persons and supplied with sufficient funds, it can send its deputies to different factories to find out what researches must be tried to economize cost and utilize waste, and then offer the problems to young students, who may receive fellowships, while they are doing research, and prizes for the right solutions. Thus the factories would begin to watch their processes very minutely and an ambition for research would be created in the educated classes who would gradually come forward to enlist themselves in industries.

Commercial museums.

Along with the commercial museums if the raw materials, with their prices, in different parts of the country and in different countries be exhibited, the manufacturers would get much information as regards the points where they should be vigilant about wastage in their factories. They will get a clue to find out the cause of the difference in the prices and qualities of the finished articles.

Government Departments settle their purchases by the tender system which a manufacturer cannot accept nor will the Government change the system. However, Government can ask the suppliers to supply them with Indian made articles only if possible, whereby a manufacturer may get a part of the profit though not the whole.

Training of labour and supervision.

The common labourer, being generally uneducated, is very slow in understanding any new method or process and still more slow in adapting himself to anything new. Primary education, besides being advantageous to the labourers, will train them in thinking a little bit theoretically and would naturally lead them to understand the cause and effect more than they do at present. This would naturally make their work more intelligent and so more skilful and efficient. No doubt as yet, to our knowledge, nothing has been done in any industry to improve the efficiency and skill of the labourer. However it is our experience that education decides the grade of skill though not always of efficiency which more or less depends upon the practice the labourer gets. So we generally recommend primary education for the improvement of the labourer's skill; besides this, competitive prizes for skilful products would also improve the labourer's skill.

Payment to apprentices, according to scale, is likely to increase their efficiency, by creating in them an interest in greater output. Often it is stated that it is very difficult to move Indian labour by piece-work but the glass industry has a different experience.

Apprenticeship system.

Apprentices get the best training in the factories and workshops, if we don't mind what time they spend for it. The training of the apprentice is quite contrary to the interest of the factory-owner who wants to get as much work from the apprentice even during his stage of training as possible. There is nobody in the factory to explain to the apprentice in a consistent and right way the different processes and their technique. He is to gather from his own experience in the course of time which means haphazard knowledge at a great loss of time, which disadvantages we expect to be removed in the industrial schools, at least for those who can afford to attend them. However the students in the industrial schools are not accustomed to work for the full period and continuously in the schools and so they prove failures in the beginning. The schools therefore should secure some apprenticeships in a few factories where the students can get actual practice of work under the factory-owner and the protection of the school authorities.

The industrial schools should have two courses, a higher and a lower, the lower one being useful for the common labourer who cannot wait long for his training, while for the higher course students with secondary or college education can be admitted and trained with detailed study. They too must get the advantages of apprenticeship. They should be given chances of going round and studying the conditions and methods of factories in the country itself and in other countries. But this chance must not be given prematurely, otherwise it may be wasted. Factories and manufacturing firms are very reserved, and without the assistance of Government and its authorities in different places and countries, no man, with whatsoever deep insight, would make any profit by his going round. At least Government can force morally those factories which it has assisted in one or the other way to allow its scholars to get their training.

Technical and Scientific Departments of Government.

Some attempts have been made in many of the provinces of India to start Technological Research Institutions either by Government or the public; but they have not been able to fulfil their aims for want of funds and a general ambition for research among the educated and the readiness in factories of taking advantage of what little the institutes have been able to attain. So for their development we have suggested two ways already, *viz.*, the establishment of a Central Board—the joining link—between factories and Technological Institutes and the creation of research fellowships and prizes. Now the third way would be to enliven the existing public or Government institutions by giving liberal funds. All such institutions in different provinces should be grouped together so that the subjects of their researches may not overlap each other.

Each institution should mostly concern itself with the problems of the industries peculiar to the province in which it is located; however they must not lose their breadth of view in their activities and interest. They may take up any problems offered to them with the consultation of the Central Research Body, which should distribute the problems to institutions which are best suited for their investigation.

As allied to such institutions, technical and scientific libraries have also been attempted but with little success. Firstly, the stock of books is deficient and, secondly, in all such libraries, the factory owners cannot get books on loan nor can they go and consult the works at any time convenient to them. So we suggest good and well equipped libraries attached to Technical Research Institutions, which should be in the form of circulating libraries for the factory-owners and technical students.

Industrial or trade journals.

Industrial or trade journals need not be established by Government itself. It should be left to private individuals whose interest always lies in keeping the journal at a very high and up-to-date level. However, such journalists should have the advantage of getting the complete information they want either in this land or in foreign countries. Government scholars in other countries should be accessible to such journalists. In short Government should act a sympathizing patron to trade journals. Government may publish monographs, if able and standard authorities or real men of experience and researchers offer them, otherwise they would be either useless or misleading.

Railway freights.

Special reduced rates should be given to glass manufacturers to enable them to send their goods to different parts of the country and to stand in competition with the imported articles.

General

The glass industry in the Bombay Presidency can hardly be said to be in a satisfactory condition. Though some factories can be found working with profit, yet many have failed, and even those that are making profit pay a very low interest on the capital invested.

The chief factors in the glass industry are fuel, labour and raw materials, each contributing $\frac{1}{3}$rd to the cost. Now as the Bombay Presidency is particularly deficient in the supply of good fuel, it has to depend upon the Bengal coal which costs a great deal to the manufacturers on account of heavy railway freight which is nearly 70 per cent. of the total price of the coal. So there seems only one way to get over this difficulty which is by reducing the railway freight. It is often argued that the railway rates in India per mile per ton of coal is less, at any rate not more, than that in other countries. This might be the case perhaps, but those who argue thus don't take into consideration the peculiar conditions of India, that coal is not to be found in all parts and it has to travel a long distance before it reaches a factory in other parts. So by any means, fuel which is the chief source of power and heat should be made the cheapest possible in all parts of India, at least for the glass industry and specially for the Bombay Presidency.

Iron moulds and other accessories of iron, on which the best finish and the greatest output depend, can scarcely be had prepard in any iron works, even by paying double the price of the foreign article. It is not that they cannot prepare them but they think it hazardous to try a new article especially when its demand is not so very encouraging at present. So we mean to suggest that the Government or aided workshops should be asked to try this new line which will be imitated afterwards by business houses.

Glass is a peculiar industry in which labour—trained labour—is a great factor in all its branches. It being a new industry, old trained labour cannot be obtained and every factory has to suffer a good deal by training up its labour; this proves a disastrous burden to a newly started factory. Especially the charges of an expert brought to train up the local labour, eat up a greater part of the capital. So we suggest that a technical school to train up labour should be started and the man in charge of it should be held responsible for the training of the labour from different factories and not for the profit.

In a glass factory the furnace at times refuses to turn out any product, and manufacturers of average abilities and training find themselves at a loss for the advice of an expert glass engineer. It is beyond their means to engage such a one all the year round. It would be a great help if the Government employs a glass engineer who will be easily approachable and will try to remove the difficulties of all the manufacturers.

As this business is not yet making much profit, the capitalists are not tempted to invest much in it. Men with the spirit of adventure though limited means have to take the chance and start the factories. They therefore are oft pressed for want of money. Their difficulty can be solved either by offering loans at a very low interest or better by starting a central store house of the raw materials necessary for glass at a convenient place to which all such manufacturers can resort and then they will not have to invest much in raw materials as they can buy the necessary quantity from the central store house, whenever required.

Another way of helping the glass industry is by removing the taxes levied upon raw materials and chemicals especially soda used in glass making. The taxes may be refunded to the glass factories on producing the vouchers of materials used in the factory.

The allied industries such as soda manufacture and ceramics, which if started and well conducted would help this industry to great extent, should also receive substantial consideration and help.

We need not mention what great benefits the protective tariff would confer upon the glass industry in India.

### ORAL EVIDENCE, 28TH NOVEMBER 1917.

*Mr. C. E. Low.*—*Q*. You say in your first paragraph that "monetary aid in any form from the Government to factories would be rather an hindrance than help to their progress unless it is given unconditionally."—*A*. Yes.

*Q*. That is, supposing Government gave a guarantee, they are to have no right of audit of the Company's accounts? The Companies may keep their accounts in any way they like?—*A*. The accounts can be examined by the auditor.

*Q*. That is a condition.—*A*. What I mean by "unconditionally" is that manufacturers should have a free hand. There is no harm in auditing the accounts of the factories, but it is the tendency of manufacturers to desire to have their hands free in the manufacturing processes.

*Q*. Government would not want to interfere with their processes.—*A*. If they do not interfere with the manufacture I do not see there is any objection in taking monetary help. What I want to see is that the manufacturers should be free; they should have the sole power of bringing into action all the changes, all the necessary steps they wish to take.

*Q*. I don't think anybody contemplates Government's interfering in the technical side of manufacturers, unless their advice is asked. Under the head of " Apprenticeship system ", you say, " At least Government can force those industries which it has assisted in one or the other way to allow its scholars to get their training." It can morally force, but if it was not made a condition of assistance given, such action would be rather immoral. —*A*. The moral tone of Government assistance would naturally force the manufacturers to admit the scholars and it is therefore not immoral on the part of the Government. We always require help from Government.

*Q*. You agree that you would like to modify the expression " unconditionally "?—*A*. That is my explanation.

*Q*. It does not seem to agree with what you say now.—*A*. I have corrected that afterwards.

*Q*. I think it would be better if it was explained a little more clearly, otherwise it might be misunderstood. I should like to know what is your experience of training glass-blowers.—*A*. My experience is that in the first place there is nobody in the factory to explain things to the apprentices. If you train them properly, they learn the art very easily.

*Q*. How long does it take?—*A*. A glass-blower requires three years, and a gatherer six months. The man who takes out the glass and hands it over to the blower is called a " gatherer ". The man who blows small bulbs is called a " bubble-maker."

*Q*. What class of men do you get to train as blowers?—*A*. We generally take men from all castes.

*Q*. Anybody you can get hold of, who seems inclined to take it up and stick to it?—*A*. Yes.

*Q*. From what age?—*A*. From the age of 12.

*Q*. You prefer to take boys or youths in training as apprentices rather than try grown men?—*A*. Yes, because boys pick up the art very easily. They understand things also very easily. They have a liking for the work. Grown-up men do not like the work on account of the severe heat, while boys do not feel it. The grown up men have not the powers of endurance which boys have. Boys can do better work.

*Q*. I understand many men who have learnt glass-blowing in your factory have gone to other parts of India to work in factories?—*A*. Yes.

*Q*. How long have you been working?—*A*. For the last nine years.

*Q*. During that time how many glass-blowers do you suppose, roughly, have gone out to work elsewhere?—*A*. Nearly 100 boys.

*Q*. What sort of living do they make?—*A*. In the beginning we pay them 4 annas a day, and afterwards when they pick up the art, a blower gets from Rs. 15 to Rs. 50 per month.

*Q*. Is he paid on piece-work?—*A*. Sometimes, but not always as our main object is to impart knowledge.

*Q*. I suppose they go to other concerns because they pay them more; they are tempted away by higher wages?—*A*. That is also the case, but sometimes there is a demand from different manufacturers to supply them with workmen.

*Q*. Do you think that the people of the South Deccan are more apt to learn glass-blowing than people in other parts of India?—*A*. I cannot say so. We try our best to admit men from different parts. We are trying our best to get men from all parts, but generally boys from this side are coming.

*Q*. Is your concern a limited company?—*A*. No, it is a charitable institution.

*Q*. You get contributions? Are you a registered concern; can you sue and be sued?—*A*. I do not follow you.

*Q*. Supposing you have to file a suit, in whose name do you do it?—*A*. I do it myself.

*Q*. You can contract liabilities on behalf of the firm?—*A*. Yes.

*Q*. You have no regular, so to speak, legal status?—*A*. We have got a committee and they have given all powers to me. As regards the work I am held responsible.

*Q*. You try of course to work at a profit?—*A*. Our first object is to impart knowledge; after giving knowledge we try our best to make both ends meet.

*Q*. Do you succeed in working at a profit, or do you come on the fund?—*A*. Now we are not losing; we are training as well as making both ends meet.

*Q*. But you lost for some years?—*A*. Yes.

*Q*. What training have you had yourself; were you the original starter of the Paisa Fund Glass Works?—*A*. After passing one year in the Ferguson College, I joined the Paisa Fund Glass Works; got my training in three years; had a roundabout in all the glass firms and saw the different methods, and after that I came back to the works.

*Q*. You have never seen any glass works out of India?—*A*. No.

*Q*. Who is the man who originally started the Paisa Fund Glass Works; what training had he had?—*A*. He had been to America, Japan and other countries. He is still in the glass business at Ambala.

*Q*. What classes of articles do you make?—*A*. Generally lamp ware; chimneys and other things, such as handies, jars, etc.

*Q*. Are you able to temper them satisfactorily, so that they don't break?—*A*. They do not break nowadays.

*Q*. How many do you make a year?—*A*. For the last year we turned out from 32 to 33 thousand rupees worth.

*Q*. Do you get a ready sale for them?—*A*. Yes.

*Q*. Has the Government glass expert visited your works?—*A*. The Government expert, Mr. Dawson, had been to see the works in 1915. He is the Principal of the Victoria Technical Institute, Bombay.

*Q*. Not Mr. Dawson, but Mr. Elland.—*A*. He never came, but Mr. Dawson had been to visit our works.

*Q*. Mr. Dawson is not the glass expert, but Mr. Elland. If your Local Government made arrangements with the United Provinces, you could get him to visit your works, if you wanted him to come down and give you any advice. You say on the last page, "It would be a great help if the Government employs a glass engineer, who will be easily approachable and will try to remove the difficulties of all the manufacturers." Do you know enough about glass to realize that you want more than one glass engineer; you want a diversity of experts.—*A*. For the present, if there is one engineer, that would be sufficient.

*Q*. But you want a man who is an expert in furnaces and pots, etc.—*A*. That is the most important point in glass factories.

*Q*. And you want a man who understands the art of working furnaces and keeping glass at a proper temperature, and you want chemists.—*A*. Before we require chemists the knowledge of engineering is most essential.

*Q*. And you also want men who know about moulding: do you do any moulding work?—*A*. No, we find it very difficult to get iron moulds. We tried our best in Bombay. Even Richardson and Cruddas of Bombay replied regretting their inability to take up our work. We are getting the moulds cast in Bombay and turning them out in our factory.

*Q*. It would be rather dangerous to start with one glass engineer, who could not be an expert and find out mistakes.—*A*. I have suggested that aided workshops should be requested to undertake that work.

*Q*. I am not alluding now to the question of moulds; I am going back to what you said about Government employing glass engineers. If you had a man who knew a little about all kinds of things, he would not know enough about any, and might lead you very wrong: for instance, a man who knew all about moulding or blowing might lead you wrong about furnaces and pot-making material.—*A*. Before he undertakes any work he will have to give his plans and estimates and the things necessary for constructing the furnaces.

*Q*. Would it not be much better to have a set of four or five men?—*A*. No, I do not think it is necessary. For chimney work, we do not require any except a glass engineer, who can construct convenient furnaces.

*Q*. Have you had any difficulty about making pots; do you make your glass in pots? —*A*. We are trying our best to make pots; even now we are getting the pots from Japan. The clay is found in India, but up till now nobody has tried the making of covered pots.

*Q*. Have you had any discussion with the School of Art about it?—*A*. We have.

*Q*. Have they been able to give you any assistance yet?—*A*. We placed the difficulty before them and they said they would have to take special sanction. It is not in their power to make that experiment.

*Q*. You mean that the Principal is not authorized to incur that expenditure?—*A*. No, he is not authorized. What he said was that it is beyond his power to take up that work.

*Q*. The actual manufacture?—*A*. Yes.

*Q.* Could he not investigate and find out what sort of clay is suitable, and how it should be treated, and the type of furnace required to burn it in?—*A.* He can do that.

*Q.* Is he doing it?—*A.* I do not know that. When we referred to him he gave us this reply, and afterwards we did not refer to him. We are trying our best by consulting different scientists in this matter, and we are now conducting the experiments at Talegaon.

*Q.* You should explain to the School of Art what it is you want; what sort of pots, size and shape.—*A.* I will do it.

*Q.* You say, " Another way of helping the glass industry is by removing the taxes levied upon raw materials and chemicals, especially soda used in glass-making." What taxes do you allude to; do you mean customs duties?—*A.* Yes, and dock charges.

*Q.* You might get the ship-owners to remove the freights! What proportion of your raw material is imported?—*A.* Coal, which we get from Bengal.

*Q.* There is no tax on that. I suppose your trouble is the alkalies, soda and potash. —*A.* We use soda ash. Potash is very costly. It forms a fairly large proportion of our total cost.

*Q.* Can soda ash not be made in this country?—*A.* Soda ash is found in an impure condition. It must be purified.

*Q.* Would it not be preferable, from your point of view, for it to come from India, so as not to pay customs duties?—*A.* If somebody undertakes that work it will be better for Indian industries.

*President.*—If we took off the import duties then the makers of soda ash would begin to grumble.

*Mr. G. A. Thomas.*—*Q.* You say that Mr. Dawson went down to inspect your works: when was that?—*A.* In 1915.

*Q.* He made certain recommendations, didn't he?—*A.* Yes.

*Q.* Do you remember what they were?—*A.* He suggested at that time that some machinery should be introduced.

*Q.* Have you got the machinery?—*A.* Yes, I have installed an oil engine very recently.

*Q.* How much have you spent on that?—*A.* I have not yet paid for that. I have taken it on trial as a loan.

*Q.* What other recommendations did he make?—*A.* We have given orders for pyrometers to see the temperature of the furnaces.

*Q* You are now endeavouring to carry out his recommendations?—*A.* Our inquiry is now nearly complete.

*Q.* A year ago you declined to do anything. You said you were not prepared to spend money on machinery, but now you have changed your mind?—*A.* I was not against following his advice, but was collecting necessary information about it.

*Q.* Can you tell me why Talegaon was selected as the site of the glass factory?—*A.* It was not started with the object of making it a commercial success. First it was started with the object of imparting knowledge in the glass industry. At the time of starting this school I was not there, but the committee had experience in the formation of the glass industry, and so they thought it better to take up this problem. They got *inam* land; and the climate was also suitable, being cool.

*Q.* From every other point of view it is about the worst possible site you could have chosen for a glass factory?—*A.* Not so bad as that.

*Q.* What raw materials are obtainable locally?—*A.* There is flint there.

*Q.* Do you use the flint there?—*A.* Formerly we did; now we do not.

*Q.* I see you suggest that the only way of getting over the difficulty of the cost of bringing Bengal coal to the factory is to reduce railway freights: would not a better way be to remove your factory to Bengal?—*A.* It is a school, not a factory.

*Q.* What public bodies do you say are best fitted to start pioneer industries?—*A.* The same as our institution.

*Q.* You call your institution a public body?—*A.* Yes.

*Q.* You say that when Government experts are lent unconditionally " the factory should be bound to return to Government a part of profits due to the services of the expert." How are you going to estimate those profits?—*A.* That would depend upon the problems we give him.

*Q*. It would be very difficult to determine the profits?—*A*. Supposing we are unable to make a certain big article; if we try to settle the percentage beforehand, we shall perhaps be losers; the part of the profit for each individual problem will have to be settled beforehand. We cannot settle a definite percentage for all problems varying in their importance; if we do like that we shall be the losers, for the profits we gain from knowing how to blow a particular article and how to construct a furnace, are not the same. And so the percentage or sum total cannot be settled beforehand.

*Q*. Then Government is to have a royalty on your output, which is due to the services of the expert?—*A*. If an experiment comes out successful through the efforts of the expert, then the cost of the experiment should be borne by the manufacturer.

*Q*. You say that "the factory should be bound to return to Government a part of profits due to the services of the expert." What do you mean by that?—*A*. I also say, " the results of his researches may become the property of the factories if they would like to buy by paying the actual charges of the expert."

*Q*. How are you going to settle the profits?—*A*. That will be settled before he takes up the problem according to its importance.

*Sir F. H. Stewart*.—*Q*. Why wouldn't men with "patriotic and self-sacrificing views" join a Government pioneer factory?—*A*. The establishment charges would be more.

*Q*. You mean they think Government would make a mess of it? How about the Madras aluminium factory?—*A*. Of course the case of the Madras factory is quite different.

*Q*. If Government started a pioneer factory, it would only do so in the public interests, would it not?—*A*. No, you see there the running charges would be more. That is the case of the Madras glass factory.

*Q*. Why?—*A*. Because the Government would employ men who would require big salaries.

*Q*. While that is not the case in public factories? Then later on you say, "Government Departments settle their purchases by the tender system which a manufacturer cannot accept." What do you mean by that?—*A*. Whenever we want to send a tender we have to keep deposits with the particular department. Suppose if we wanted to supply railways with our articles, we must keep some deposit with them for a certain time, while we are pressed for want of money.

*Q*. Is it such a large amount as that?—*A*. Besides the question of money, all procedure is very inconvenient to the manufacturer.

*Q*. Then about the situation of your factory. You just said that you don't wish to regard it as a factory from the commercial point of view. You want to regard it as a school. It is not a commercial proposition?—*A*. It is a school, to impart knowledge.

*Q*. It is not a commercial proposition at all?—*A*. No, but we are trying to make as much profit as we can from that school, so that we should not be overburdened.

*Q*. If you wanted to start a school, why did you choose to start a glass factory in an unsuitable place?—*A*. That is beyond my power to explain, because I was not present when this school was started.

*President*.—*Q*. Do you think it well for it to go on in a place that is unsuitable?—*A*. It is not unsuitable for a glass school.

*Q*. But you have no fuel?—*A*. Yes, there is no fuel.

*Q*. You have no soda ash?—*A* No.

*Q*. You have no sand that you use now?—*A*. There is sand.

*Q*. But you don't use it?—*A*. No.

*Q*. So you don't use locally any of the materials?—*A*. No.

*Q*. And your market is not near Talegaon?—*A*. It is very near Bombay and Poona.

*Q*. But then it is easier to have a school nearer Bombay?—*A*. Talegaon is besides cooler than Bombay.

*Q*. You think the climate is an advantage?—*A*. Yes, when they started the school, labour was also very cheap.

*Q*. Is it wise to train students in a place where the conditions are utterly unlike those that would be necessary to make that glass industry a paying proposition?—*A*. That point should be studied by manufacturers who want to start factories on a commercial basis.

*Q*. Is it wise to carry on a school there and work in conditions not suitable for commercial purposes? Would not the students learn more if they worked in a factory under commercial conditions?—*A*. At first the processes should be taught and then they should be acquainted with other matters.

Q. They could learn the processes in commercial institutions where they would see conditions suitable for commercial success.—A. We give instructions to them as to what are the important factors that go to make a success.

Q. Could they not get those instructions in a class room. Could you not have lectures or gramophones introduced? You cannot teach students unless they are working under natural conditions; you are not doing the students any good.—A. I do not think so, because a school can be started in any place.

*Sir D. J. Tata.*—Q. Could you give us the history of the Paisa Fund? Who started it, how much money was collected, and what are the objects of the institution?—A. Mr. Antaji Damudar Kali is the man who first started this institution.

Q. Where does he come from?—A. From the Thana District. He had an idea of starting an Industrial Fund. He then formed a committee of respectable and prominent leaders. With the help of those leaders, he was able to form a committee, some of the most respectable and prominent men being elected, and then they after a long and thorough discussion started this school at Talegaon.

Q. Where did they get their funds?—A. By collecting.

Q. I suppose everybody subscribed a pice, or more?—A. A pice is the minimum but even if a thousand rupees are given, they are accepted. They have collected nearly 75,000 rupees or so, out of which they have spent 60,000 rupees in the training school. The expenses are kept up by voluntary contributions from time to time.

Q. Have you got a system of collecting? Does money come to you voluntarily?—A. People go round from house to house and collect. They distribute information about the institution and then they get contributions from all sympathizing people.

Q. Is it sufficiently advertised to get people to come and study in it?—A. Whenever we want to admit students we give a notice in the leading papers.

Q. In the vernacular?—A. No, in all, in Canarese, and Marathi.

Q. Are any of your students educated in any sense?—A. Whenever we admit them we see what qualifications they possess.

Q. You said that you admit them when they are 12 years old?—A. At that time we see if they know something of primary education and mechanics.

Q. They could not very well at 12 years of age?—A. From 12 to 14. We have got some boys of 12.

Q. The only thing that prompted you to choose Talegaon was that it was a very cool place?—A. Yes, and we got land free and it is very near Poona and Bombay. Members from these places find it convenient to go to Talegaon and inspect the school work.

## WITNESS NO. 345.

MR. B. D. AMIN, B.A., M.S.C.I., *Ex-officio Director, the Alembic Chemical Works Company, Limited, Baroda Camp.*

*Mr. B. D. Amin.*

### WRITTEN EVIDENCE.

Before coming to the evidence proper, I beg to observe that the present industrial situation calls for prompt action on the part of both the people and the Government. It calls not only for the maximum effort on the part of the people, but also for the closest co-operation between the people and the Government, involving, wherever necessary, the use of Government organization, as well as opportune legislative action. There are enterprises started by Indians that are struggling on their way as best as they can. I am interested in the concern started and run by Indians and the concern—the Alembic Chemical Works Company, Limited, Bombay and Baroda—which I represent, is one which falls under the above category and I attempt below to describe those difficulties which beset it:—

### *General.*

*Importation of duty-paid spirits and spirituous articles into any part of India direct from our factory.*—In accordance with the present excise rules and regulations, spirits and spirituous products, even intended for export to any part of British India, have first to be imported into Bombay, before being despatched direct to their destination. This procedure is a cumbrous one involving considerable delay, inconvenience and unnecessary loss, as consignments meant for places between Bombay and Baroda and northwards have to pay double railway freight, cartage and cooly charges, which go to enhance the cost price, thus making it almost impossible for our concern to compete with foreign manufacturers. This restriction enforces us to supply our customers of Baroda Camp, which is only a mile's distance from our factory, from our Bombay Stores, thus entailing unnecessarily double carriage charges and loss of time.

With a view, therefore, to expedite despatch of our duty-paid spirituous products to any part of India from our factory direct so as to enable us to compete with the foreign dealers in our line, we propose the following course, which without affecting the Government revenue, will greatly facilitate our business :—

We should be provided with a bonded warehouse either in Baroda Camp or within the railway limits at the Baroda Station; this request, if complied with, will help us to increase our business by enabling us to manufacture goods to the full extent of our capacity which we estimate at 450 gallons of pure rectified spirit per day.

*Permission for denaturing spirit in our factory, under the Baroda Government supervision preferably or under that of the nearest British Excise Officer.*—We solicit the permission in order to enable us to export our industrial alcohol to any part of India, outside Baroda State, without requiring us to lock up a large amount of money which, under the present procedure, we are required to do for first importing rectified spirit into Bombay for methylation on prepayment of the full duty leviable on such spirit and thus placing us under a disadvantage and difficulty which we experience in competing with Java spirits imported in bond. At present the market is practically closed to us for sale of this our staple product chiefly for which the factory was originally started.

*Export of spirits and spirituous products in bond to big coastal towns in India and also to any other places outside India.*—Under the present procedure, we are allowed to import our spirits into Bombay and Ahmedabad only on prepayment of duty, prior to their removal from our factory. This necessitates a large outlay of working capital ultimately increasing the prime cost. This restriction acts as a hardship on us as we lose heavily by way of interest on a very large amount of money which we have unnecessarily to lock up for the prepayment of duty which amounts to about rupees three lakhs (3,00,000) per year on an average.

The spirits from foreign countries imported into British India by sea come in bond and the duty thereon is paid on clearance from a bonded warehouse wherein they are stored on importation. Our products may be treated in the same manner as those of foreign countries. thus removing the disadvantage under which we are at present working in competition with foreign imports.

Although we had had inquiries from England for rectified spirit, it did not pay us to supply it as we had to pay tariff duty both in India and England which made our cost quite prohibitive. The payment of tariff duty at the place of exportation and also at that of importation is a clear injustice which practically closes against us the markets of other countries.

*Charging the excise duty instead of tariff duty.*—Our products being manufactured in India do not come under the customs regulations, and as such should be subject to the payment of excise duty which is charged on country spirits. If our products are treated as local and subjected to excise duty, it will enable us to compete with bounty-fed foreign spirit against which we shall be afforded a protection in this shape without requiring any change to be made in the tariff.

*Protection against foreign goods imported in India.*—In case our suggestion of levying the excise duty on our products instead of the tariff duty is not acceptable, we would suggest an imposition of a surtax on all goods coming from outside the statutory limits of India which will afford us a protection against the imported goods and the help rendered us in this direction would go a great way in developing our industry at the same time increasing the Government revenue.

In this connection we respectfully invite your kind attention to the following paragraph of the report of the Departmental Committee on Industrial Alcohol to the Chancellor of Exchequer (presented to Parliament, 11th April 1905) :—

" It is patent that producers, thus hampered, could not hope to compete successfully, either in the home or in foreign markets against rivals not similarly hampered, unless some counterpoise were provided to the burdens that fiscal restrictions impose upon them. Accordingly the law does provide such a counterpoise in case of the home market *by making the duty on imported spirit exceed the duty* on British spirit by an amount equivalent to the burdens on the home producer—this is called the "surtax" and in the case of foreign markets, *by granting to the home* producer allowances calculated on the same basis." "To relieve imported spirit from the surtax which is needed to counterbalance the burden imposed on production in this country by the excise regulations would be manifestly unfair, and its effect would be to give to the State-aided spirits from Germany or Russia a practical monopoly of the market in this country for industrial spirits."

Both the allowance and the surtax aim at the same purpose, which is not to put the Indian producer of spirits in a position of advantage as compared with his foreign or colonial competitor, but save him from being placed in a position of disadvantage with the outside competitors.

I might mention here that at present in the United Kingdom an allowance on exportation of 3*d*. per proof gallon in the case of plain spirits and of 5*d*. per proof gallon in the case of compounded spirits is granted. The allowance of 3*d*. per proof gallon is also paid on all spirits used in arts and manufactures. In addition to the above allowance, a special allowance of 3 per cent. for waste in manufacture is allowed on all compounded spirits exported from the United Kingdom. While such a state of affairs prevails in the case of United Kingdom and its Government come forward to afford special facility for the development and extension of this particular branch of trade, I would humbly urge that in the case of a country like India still ampler facilities should be afforded, *viz.*, in addition to the above allowances, an allowance of 5 per cent. is necessary to compensate for the loss of spirit occurring in the manufacture of the various preparations and it should be fixed at this rate instead of 3 per cent. allowed for similar reasons in the United Kingdom on spirits exported in consideration of the fact that owing to the much higher temperature in this country a correspondingly higher manufacturing loss is inevitable.

*Transport facilities*:—Although we pay a very large amount in the form of railway freight, amounting to about a lakh of rupees per year on transport of our raw materials and finished products, we are not afforded any facility with regard to transport.

We do not receive regular and timely supplies of *mowra* and coal in season due to shortage of waggon supply; and although we have tried many a time even in different directions, we are neither given siding facilities, nor do the railway companies give us any concession in rates as is granted to other sister industries which, to our detriment, creates an unfair competition. If we are given concession in rates of railway freight on *mowra* flowers—the chief raw material for industrial alcohol in India—we shall get them cheaper from other parts of India, where they are found in abundance, while heavy transport charges make it prohibitive for us to do so at present; and the granting of concession in rates on spirits and industrial alcohol will help us to compete with the foreign importers.

Further, we have made several representations to the railway company for early despatch of, and proper watch over our spirit consignments which are detained at the junction stations beyond a normal period where they are tampered with during transit and reach their destination in a leaking condition. This puts us to a very heavy loss. But Railway authorities have not given any consideration to these representations.

I now come to the general questions on which I offer my views as under:—

### OTHER FORM OF GOVERNMENT ACTION AND ORGANIZATION.

(*a*) Amongst many factors which stand out prominently as bar against the development of various industries in India, there is one of transport difficulty and heavy railway freights. If, for example, any article were made at Baroda as cheap as at London, yet the people at Madras will have to pay a higher price for the Baroda product, taking into consideration heavy railway freights and the high charge of strong spirit containers used to avoid leakage and evaporation.

(*b*) The railway freight rates for the trade should be uniform according to distance, and if any reduction is granted, it should be entirely for the trade and not for any particular individual or a firm.

### *Financial Aid to Industrial Enterprises.*

*Question 1* (*a*) The Government assistance by way of financial aid to industrial enterprises should not be such as would create an unfair competition between industrial concerns of the same nature in different provinces; as for instance an industry started in Calcutta or in Madras should not be afforded such a help in any shape as would make the products of a similar industry started in Bombay unsaleable in its own province.

(*b*) No money grants need be given by the Government.

(*c*) Government should not help industries either by bounties or subsidies, but should give protection against bounty-fed foreign imports by a countervailing tariff.

(*d*) Machinery and plant may be supplied on hire-purchase system to cottage industries only; this object may be secured through co-operative societies.

(*e*) The system of preferential purchase by Government of products should be adopted and to facilitate this, Government Stores Department should be located in India and not with the India Office in London, and a list of Government requirements should be periodically published. There should be a museum of Government requirements at each Provincial Government seat.

In this connection, I may invite the kind attention of the Commission to the order of the Baroda Government, the object and aim of which are highly laudable and worth following. The order runs as under:—

**" Orders have been frequently issued with the object of encouraging the local manufacturers in the State for the purchase of articles manufactured by individual factories for use of the State Departments, but as an uniform standard being found necessary to be fixed,**

with a view to encourage the indigenous art and industry, the following regulation is sanctioned, and it is hoped that this regulation will be given entire effect to by every department:—

(1) The Director of Commerce and Industry should prepare a list of articles manufactured in the State; any alterations and additions in the art and industry of the State effected after the preparation of the list should be published in the new list with modifications.

(2) A copy of the list after publication should be furnished to every department of the State.

(3) Every department of the State must purchase the requirements, so far as available, from the factories of the State, but if there is a material difference in price, quality or manufacture, there is no objection to buy those articles from outside, after sanction as specified in the following clause is obtained.

(4) If it is not possible to purchase articles manufactured in the factories of the State for any particular reason stated in the 3rd clause there is no objection to purchase articles from outside after sufficient ground is shown of so doing and after the sanction of the Dewan is obtained. A copy of the grounds on which it may be determined to purchase the articles from outside, along with a copy of the Dewan's order thereon, may be sent to the Director of Commerce and Industry.

(5) If the Director of Commerce, after examining the list, finds any defects or inferiority in quality in the articles manufactured in the State, he should bring it to the notice of the owner of the factory and help him to improve upon it.

(6) Every department should send a list of their likely requirements to the Director of Commerce at the beginning of every year. The Director of Commerce should examine these lists and should inquire if the articles mentioned therein are likely to be manufactured in this State. Such lists should be published every year for the information of the public.

(7) The goods required for the departments of the State should be purchased as far as possible through the merchants of the State only. The responsibility of enforcing the regulation accordingly will lie on the chief officer of the Department."

I submit the following further suggestions for consideration:—

(1) Spirit for use in industrial purposes should be free of duty, and if this concession were granted the following new industries in which the spirit is chiefly used are likely to be successful:—

- (*a*) Manufacture of perfumed spirit.
- (*b*) Making of denatured spirit for burning and motive power.
- (*c*) Making of furniture polishes and lacquers.
- (*d*) Making of tinctures, extracts, liniments, liquors and spirits for medical uses.
- (*e*) As a solvent for medicinal drugs and manufacture of alkaloids from vegetable drugs and certain other chemicals.
- (*f*) Making essences for syrups and ærated waters.
- (*g*) For manufacture of ether and chloroform.
- (*h*) Manufacture of colours.

(2) Duty on spirits contained in the *bonâ fide* medicinal preparations should be charged at a lower rate than that charged on potable spirits.

(3) Rectified spirit should be allowed to be used as a solvent, or as a crystallizing medium or as a washing liquid in the manufacture of chemicals, drugs, colours, synthetic perfumes, natural perfumes, etc., under the control of a Government officer, such products, if containing spirit, in the form of spirit, when coming out of the factory, to pay usual duty.

(4) Rectified spirit and absolute alcohol for the *bonâ fide* use of colleges, schools, and research laboratories, and other educational institutions may be given duty free on a requisition being made by the head of any such institution to the Government.

(5) For denaturing spirit for uses as fuel, power and for manufacturing purposes, cheap denaturants produced in the country may be used; such denaturants to be poisonous and incapable of being separated from the denatured spirit by usual means and to have such distinct smell as cannot be removed by usual means and as can distinguish denatured spirit from undenatured one by smell only.

In cases where the usual denaturants are unsuitable for any particular manufacture, special denaturing agents may be allowed as suggested by the Departmental Committee on Industrial Alcohol in their report submitted to the Chancellor of the Exchequer in April 1905.

*Conclusion.*—I have the honour respectfully to bring to your serious notice the fact that we have been representing our difficulties for the last 4 (four) years, but much to our regret, our representations have not received any consideration so far. The suggestions submitted require removal of fiscal regulations which act as impediments to the growth of our industry, and which can be removed without the least danger to the Government revenue, and in view of the declared policy of the Government to encourage Indian industries we trust our suggestions will receive due, fair and prompt consideration, so as to facilitate our business and secure our interests in competition with foreign importers.

ORAL EVIDENCE, 28TH NOVEMBER 1917

*Mr. G. A. Thomas.*—*Q*. When did you write this evidence?—*A*. In January 1917.

*Q*. I think some of your difficulties have been removed since then?—*A*. Out of several difficulties enumerated in my written evidence, only one difficulty is partially removed, *i.e.*, permission for denaturing spirit in our factory at Baroda under the Baroda Government supervision is granted, but facility for exporting to any part of British India directly from our factory is not granted.

*Q*. Is not rectified spirit for industrial purposes free of duty?—*A*. The Government of India have authorized the remission of the existing excise duty of Rs. 11-4-0 per proof gallon on locally manufactured rectified spirit used for industrial purposes, but this concession has not been made to apply to wastage of spirit in the processes for the production of articles which would be liable on importation to spirit duty under items 34, 35, 36 of Schedule II of the Indian Tariff (Amendment) Act IV of 1916, thereby prohibiting the existing Indian industries in item 34 perfumed spirit, in item 35 liqueurs, cordials, mixtures and other preparations containing spirit, in item 36 all other sorts of spirits, *i.e.*, including pharmaceutical preparations containing spirit. British manufacturers are allowed on these preparations remission over 3 per cent. more spirit than actually exported. Thus the concessions granted are partial and cannot serve any purpose in case of industries in existence at present in India.

*Q*. Is not the duty on your denatured spirit $7\frac{1}{2}$ per cent ?—*A*. No duty is charged on locally manufactured denatured spirit, but $7\frac{1}{2}$ per cent. is charged on denatured spirits used only in pharmaceutical preparations.

*Q*. Those two are the main difficulties?—*A*. Yes.

*Q*. You want to have a warehouse within the railway limits of Baroda?—*A*. Yes.

*Q*. Has not that yet been given to you?—*A*. No.

*Q*. Have you not received any reply from the Government on the subject?—*A*. We have been asked to ascertain whether the Railway Company will grant us a site for the construction of a warehouse within the railway limits of the Baroda Station. We addressed a letter to the Railway Company and the reply we got was that we should forward our application through the Darbar of Baroda for this purpose. We forwarded our application through the Darbar of Baroda and the Darbar of Baroda addressed a letter in this matter through the Resident at Baroda Camp stating that the land in the Baroda territory is ceded to the British Government with a view to foster and develop home industries and that they would not object to a site within railway limits being given to our Company as a special case and on the understanding that the rent, if any, which the Railway authorities may charge for the occupation thereof is credited to the State. I do not know further about it.

*Q*. You are in a fair way to get what you want there?—*A*. Yes; so far as the warehouse within the railway limits at Baroda.

*Q*. So two difficulties have been removed and one is in the process of being removed. —*A*. When the bonded warehouse is given to us at Baroda, there will be no difficulty for importation of duty-paid spirits and spirituous articles into any part of India direct from our factory.

*Q*. If you get that, there is nothing else to complain about?—*A*. We have to compete with foreign spirits. It has for long been the policy of Government that the excise duty on all articles manufactured from spirit other than ordinary potable country spirit should be the same as customs duty and a minimum strength has been imposed on perfumed spirit. As a rebate or allowance of 3*d*. per proof gallon on plain and of 5*d*. per proof gallon on compounded spirit is given in the United Kingdom on all spirits exported, it would seem to follow that to put Indian manufacturers in a position of equality, the excise duty should fall short of the customs duty by similar amounts. In other countries it is probable that similar allowances are granted. By the present customs system of charging duty, imported spirits are unduly favoured to the extent shown above. The net result is this:—While foreign as well as Indian spirit manufacturers have to pay apparently the same tariff rate duty, foreign firms get a rebate of *3d.* per proof gallon for plain and *5d.* per proof gallon for compounded spirits as well as an allowance of 3 per cent. in alcohol exported as perfumes, tinctures, etc., for rebate purposes. It is obvious then that foreign firms are not in the same position but enjoy material advantage over Indian competitors. As all the British excise regulations are enforced in India, Indian manufacturers of spirits for perfumes, tinctures, etc., are entitled to the same rebate rules, because the extra manufacturing cost entailed by them is to be borne by Indian firms too. In fact, compared with British and foreign firms, Indian firms are at present in the same position in which British firms found themselves in 1860 in comparison with foreign firms supplying spirits to United Kingdom. To put them on an equal footing the British Parliament granted the rebate of *3d.* and *5d.* The difficulty felt by British firms then is felt by us now, and hence we ask for a similar solution by keeping the customs duty higher than excise duty to that extent. We must be placed in the same position as foreigners.

*President.*—*Q.* You state here that the difficulty with you is that you have to be in Baroda and not in British territory.—*A.* We have our registered office in Bombay, and Baroda is a branch, so we are in British territory. The question of excise control and jurisdiction can be solved by giving us a bonded warehouse in railway limits of the Baroda Station, as we have agreed to construct a bonded warehouse at our cost and also have agreed to pay Rs. 1,800 per year for the expenses of the staff to be maintained for excise control at this warehouse.

*Q.* I do not think, as a Commission, we should report against that particular difficulty because it takes us to local conditions.—*A.* It is not local as local excise duty is not charged on our spirits, but Indian tariff rate duty is made applicable to our spirit by Imperial Government, so it is Imperial duty and not local excise duty with which we are concerned.

*Q.* But the circumstances are local. We could not report on this particular case unless it is a typical case.—*A.* It is a typical case so far as industrial alcohol is concerned, for the whole of India and many Indian industries are dependent upon the cheap production and supply of industrial alcohol.

*Mr. C. E. Low.*—*Q.* Do you know at what price Java produces commercial spirit?—*A.* I do not know of their cost price.

*Q.* Do you know what it is made from?—*A.* It is made from molasses.

*Q.* It is made from a waste product of sugar manufacture which they previously used to throw into the rivers?—*A.* Yes.

*Q.* Do you know what happens to the corresponding product of the sugar industry in this country?—*A.* It is eaten by the people in the form of gur.

*Q.* And you are eating in this country what Java people were previously throwing away, and do you think it is likely that you will be able to make it as cheaply as Java?—*A.* Yes, we have *mowra* flowers in great abundance in forests, which has equally high percentage of sugar in it and which is procurable at a very cheap rate, sometimes even by paying the cost of collection from the forests.

*Q.* What raw materials do you use?—*A.* *Mowra* and coal. We use largely firewood. We get both *mowra* and firewood at a very cheap rate from the nearest forests of Baria, Panch Mahals, Chhota Udepur, Baroda State and Alirajpur. As regards *mowra*, I have read the report of the Industries and Commerce Department of His Highness the Nizam's Dominions in which it was stated that *mowra* was thrown away and allowed to waste in forests as they could not find market for this forest product. If railway facilities are given, we would import from there paying only the cost of collections to poor people.

*Q.* You say, "We shall get them cheaper from other parts of India where they are found in abundance." Why did you not put up the factory near the place where it is available?—*A.* When the crop of *mowra* flowers from forests nearest our factory is not found in abundance, we could very well import from such distant places, in case of emergency if we have transport facility. With light railway freight and nominal price if we get *mowra* from places where the seasonal crop is found in abundance, why should we not utilize it?

*Q.* You put your place of business a long way from where coal is, and in a place where there is not sufficient raw material, and it seems to me that your complaint as to railway charges is to some extent prejudiced thereby.—*A.* We have located our factory at a place where we have more than sufficient quantity of firewood; so much in abundance that our part is meeting the demand of some of the mills in Ahmedabad, and as regards raw materials, *i.e.*, *mowra* flowers, we have large forests near our factory from which we draw *mowra* flowers for our requirements, and over and above our requirements, these forests are supplying *mowra* flowers to Surat and Uran distilleries in Bombay.

*Q.* Do you use firewood or coal?—*A*. We use both. If coal is available at moderate rate, we use coal and in time of coal scarcity we use firewood.

*Q*. I suppose you have considered this point, that there are two classes of manufacturers in India, people who make commercial spirit and people who use it in their manufactures?—*A*. Yes, we have considered this point and we have two departments in our concern, (1) distillery and (2) pharmacy. In distillery department we manufacture and supply industrial alcohol to the trade. In pharmacy department we use alcohol for the manufacture of medicines, perfumery, alcoholic beverages, etc. We have a large demand in both the departments and the whole of our output can be consumed by Ahmedabad and parts north of it if we have not to send our spirits and spirituous preparations to Bombay under excise rules, and if we are allowed to keep Baroda warehouse as the distributing centre for all our spirituous products.

*President.*—*Q*. If you wish to put up the price of imported alcohol, you will hit the people who make use of it very largely and you will render them unable to compete with the other people who import varnish and other things?—*A*. What we want is to put Indian manufacturers on a footing even approaching to equality with European exporters of spirits and spirituous preparations. Both the allowances and the surtax aim at the same purpose which is not to put the Indian producers of spirits in a position of advantage as compared with their foreign or colonial competitors, but to save them from being placed in a position of disadvantage. In imposing a heavy duty on Indian spirits, it is necessary at the same time to impose on their manufacture restraints designed to prevent any spirit from escaping the duty. These restraints have the effect of appreciably increasing the cost of manufacture, and in consequence the burden of the duty on the Indian producers of spirit is not adequately measured by the figure of the duty alone, but must be measured by that figure *plus* the figure by which the cost of manufacture is increased by the excise restrictions.

*Sir F. H. Stewart.*—*Q*. You are an *ex-officio* Director? What do you mean by that?—*A*. The Company is an incorporated one. It is a limited company having its capital subscribed by shares. I am representing in the Board of Directors Managing Agents and as such I have to watch the interest of the Managing Agents and work with the Directors of the Company enjoying the same rights as are enjoyed by the Directors, but other Directors are made to retire every year by rotation, but I am a permanent member of the Board and have not to retire by rotation.

*President.*—*Q*. Would it not be advisable for you to alter this printed statement of your evidence in accordance with your answers to Mr. Thomas which show that many of these difficulties that you had last year when you wrote this have disappeared?—*A*. I do not wish to alter my printed statement of evidence as the abolishing of *ad valorem* duty of 7½ per cent. (*i.e.*, 2 annas per gallon on spirits as actually methylated) on locally manufactured denatured spirit does not put us on equal footing with British distillers, as in United Kingdom, where to put them on par, foreign spirits have to pay a customs surtax of 5*d*. per proof gallon equivalent to about 8*d*. per gallon on the spirits as actually methylated. Like the British, we have also to compete with foreign spirits getting allowance on exportation from their Governments. Hence a similar tax alone can put us on an equal footing with foreign competitions.

*Q*. You would rather let your written statement stand as it is?—*A*. I would like to keep it as it is. After I submitted my written evidence I met with another difficulty. Our Agent at Karachi sent a consignment of our spirituous preparations to Ludhiana. The Excise Officer of the Punjab Government did not allow the sale of our products, but our Agent was ordered to take it back to Karachi. We submitted our case to the Bombay Government, the Government of India and the Punjab Government. Bombay Government sent us a reply saying that under section 884 of the Punjab Excise Manual the import of Indian made foreign spirit cannot be allowed into the Punjab except that made at Messrs. Carew and Co.'s Rosa Distillery in the United Provinces and asked us to apply direct to Punjab Government. Punjab Government, when moved, replied that the Lieutenant-Governor regrets he is unable to relax the prohibition. The Government of India, Department of Commerce and Industry, replied that the matter is still under the consideration of the Government of India. This unexpected difficulty has now been experienced by our Company and the market for our Indian products in Punjab is closed to us even though we pay Indian tariff rate duty, while the market is open for spirits imported from Java and Japan in Punjab.

*Q*. You had difficulty in selling spirits for drinking purposes. That has nothing whatever to do with industry.—*A*. Potable drinks are coming in large quantities from different countries, and there is no reason why we are not placed in the same position as the foreign countries.

*Q*. We would like to see less of it consumed, both foreign and Indian.—*A*. If drinking is to be discouraged, importation of potable drinks from other countries must first of all be stopped. If foreigners are allowed to trade in this line freely, we do not see how drinking will be discouraged simply by stopping potable drinks manufactured in our distillery. If you stop foreign imports, we shall close this department and shall open new industries in which spirit is chiefly used as enumerated in the latter part of my written evidence.

*Q.* Which line will you open?—*A.* A line in which industrial alcohol is consumed largely.

*Q.* There are difficulties in the way especially when you combine the sale of spirit for drinking purposes?—*A.* We have distillery and pharmacy departments worked and managed independently, and if our difficulties could be removed by separation of these two selling departments, we are quite prepared to separate these two departments on the lines suggested by the Government.

*Q.* There are difficulties in the way and attempts to tackle the difficulties have failed. The case has been for a long time under the consideration, not only of this Government, but of the Home Government too.—*A.* Indian manufacturers should be put on a footing even approaching to equality with European exporters of spirits and spirituous preparations so that we can fairly compete with them. We want but a fair field of competition.

## WITNESS No. 346.

*Mr. Jamnadas M. Mehta.*

### MR. JAMNADAS M. MEHTA, M.A., LL.B., *Barrister-at-Law, Bombay.*

### WRITTEN EVIDENCE.

Position of Indian students in the United Kingdom.

I am a Master of Arts and a Bachelor of Laws of the Bombay University. I was called to the Bar in 1914. During my stay in England for over a year and a half I had visited Cambridge, Edinburgh, Glasgow, Liverpool and Manchester. In London I had special opportunities of knowing the difficulties and disabilities of Indian students. I was a member of the Executive Committee of the London Indian Association and was for some time its Vice-President. I presided at a meeting of the Indian students held at Caxton Hall on the 8th May 1914 to adopt a statement of their grievances, copy whereof I enclose and mark A.* I was acquainted with almost all the office bearers and principal members of the Indian Engineering Union of London and had through them occasion to learn of the grievances of that class of students.

I was invited and gave evidence, both oral and written, before a sub-committee appointed by the London Advisory Committee for Indian students with the approval of His Majesty's Secretary of State for India on the 6th October 1913 "to inquire into any regulations of the Inns of Court and other public bodies which appeared to press hardly upon Indian students and to present the report to the London Advisory Committee and to use its discretion to inquire generally into the complaints of the Indian students."

I am the Honorary Secretary of the Indian Students' Friends' Society established in Bombay two years ago to watch, promote and safeguard the interests of Indian students in the United Kingdom. That Society addressed a memorial to His Excellency the Viceroy and Governor General in Council on the question of the position of Indian students in the United Kingdom on the 19th July 1916, a copy whereof I enclose and mark B.*

I had the honour of moving a resolution on this subject before the Eleventh Indian Industrial Conference held in Bombay in 1915.

The only point on which I wish to give evidence before this Commission is the question of Indian students who go to England and other foreign countries for the purposes of technical education. In 1899 the Indian National Congress passed a resolution emphasizing the importance of technical education. It is indeed an indispensable preliminary to the growth of industries in this country; ever since then both the Government and the public have devoted increasing attention to that subject. It is recognized that India by virtue of its vast and illimitable stores of raw materials affords a splendid field for industrial enterprise; capital, though shy, can be induced if a sufficient return is fairly assured. Labour is cheap and plentiful, but it has been found by experience that all these advantages are unavailing until a class of trained experts can be brought into the field to organize, manage and conduct large manufacturing industries on the latest scientific methods. Many an industry has failed or is languishing for want of trained technical experts. To remedy this state of things, a beginning has been made for imparting technical education in schools in India itself. But it is fully realized that what is wanted is not a class of trained mechanics but experts who have received the highest scientific education and training. Government has started a system of technical scholarship on the lines suggested by the Simla Conference of 1901, and since then a number of Indian youths have gone to England as State scholars for the purpose of being trained as experts in textile industries, mining and metallurgy, electrical and mechanical engineering and for other branches of higher technical education, both theoretical and practical. Others have gone at their own expense or have been sent by philanthropic associations or individuals to foreign countries with a similar object. During the last 15 years nearly 500 students—State scholars and others—must have left India for technical education, and from the results so far obtained, some general conclusions are fairly deducible. It has been found by experience that quite a large number of youths go to foreign countries without any fixed idea as to what they want to study and without being equipped with the general knowledge and training that is essential in most cases; nor is it always taken into consideration whether India affords a scope for the employment of young men who return after finishing their education. Some go merely out of glamour involved in being educated in a foreign land. In this way a large element of speculation has been introduced ending in disappointments and failures which could well have been avoided.

---

* Not printed.

When students who go to England at their own cost miscalculate or allow speculative considerations to affect their course of conduct with respect to this question and fail, they injure themselves only; but if scholars who are sent at public cost are not properly selected and they fail, the loss falls on the public purse. In future, therefore, those who are sent to England or other places as State scholars for technical education should be selected with greater care than has been hitherto taken; in particular—

(1) No scholar should be sent who has not had a sufficient general education and who is not equipped with a fair amount of elementary knowledge of the subject he is sent to study.

(2) The grant of State scholarships should be confined to those industries whose development is being arrested for want of technical knowledge. No scholarship should be granted for industries on the bare probability of their being established on the return of the student unless the Government are willing and ready to perform the experiment themselves.

(3) It should be clearly laid down that no State scholar shall be eligible for service under Government unless that has been one of the conditions on which he has been sent out.

(4) The period for which the scholarships are granted should not generally be less than three years: it may be more where circumstances require.

(5) The amount of scholarship should be increased by at least £50 a year.

But even if all these precautions are taken, the moneys spent after technical and industrial education in England will be in many cases wasted unless and until Government take particular care, not only as regards their own scholars, but with respect to every Indian student in Great Britain that ample facilities for practical training in factories and workshops shall be provided for all Indian students who are willing to avail themselves of such facilities and who are otherwise properly qualified. It has been a most disheartening circumstance that scores of young Indians, who have at considerable self-sacrifice gone to England for technical education, find themselves unable to secure facilities for practical training either through race prejudice or trade jealousy or through some similar cause, and the disappointment and heart-burning caused by this state of things has resulted in much mischief which could and should have been avoided. Government in this respect have a duty which hitherto they have not fully discharged. It has been urged again and again upon the Secretary of State for India that he should move in this matter; but so far without success. Mere informal introductions will never succeed unless the Secretary of State decides to make use of the most powerful weapon that he possesses. Every year the Secretary of State purchases an enormous amount of stores, and it has been suggested to him that he should in placing orders for these stores make it a condition with the firm to which the order is given that it shall provide facilities for a given number of Indian students for their practical training in the factories and workshops. This is a most reasonable suggestion. The Indian students have again and again asked for it. Governments of other countries have acted on that principle with good results. The sub-committee of the London Advisory Committee for Indian students which went into this question with the approval of the Secretary of State for India has also made a similar suggestion. The Indian Industrial Conference has also twice endorsed that suggestion. The Morrison Committee on State Technical Scholarships has made a similar recommendation, and in fact that appears to be a most reasonable and practical solution of the question; but the Secretary of State for India has hitherto turned a deaf ear to it. Until the Government of this country starts technological and research institutes comparable with those in the West, it is the clear duty of those who represent India in England to endeavour to the best of their opportunities to get justice done to Indian students. The late Mr. Gokhale said that so long as England was responsible for the Government of India, Indian students had every right to seek facilities for education there, and the whole country shares the view. I therefore suggest that in order to facilitate the practical training of Indian students in factories and workshops in England, the Secretary of State should, while placing orders for stores for India, give preference to firms which, all other things being equal, are prepared to take up a certain number of Indian students in their factories for practical training.

(*Mr. J. M. Mehta did not give oral evidence.*)

## WITNESS No. 347.

### MR. G. A. GAMMIE, F.L.S., *Imperial Cotton Specialist.*

### WRITTEN EVIDENCE.

### *Statement on Cotton in India.*

*Indigenous Cottons.*—Until 1877 the botany of Indian cottons was very imperfectly understood, all the varieties being taken as belonging to one or two species which were roughly distinguished by the presence or absence of fuzz on the seeds. In this year the Italian Botanist, Todaro, who grew the varieties he described, laid the foundation of our present knowledge of the Indian cottons.

Some years ago, with the aid of this invaluable classification, a detailed survey of all the cottons of India was undertaken by me, under the auspices of Mr. J. Mollison, the first Inspector-General of Agriculture in India.

It was found that the Indian cottons could be broadly arranged under the following botanical types :—

(*a*) The red flowered perennial Indian tree cottons (*Gossypium Arboreum*) which now only occur sporadically, having been abandoned on account of their low yield and their perennial nature, rendering them particularly susceptible to the vicissitudes of seasons and the attacks of insects and fungi.

(*b*) The red and pink flowered annual derivatives of the above (*Gossypium Sanguineum*). These are confined to certain parts of the Punjab. The Multan cotton of the trade belongs to this type and good judges pronounce it to be of superior quality.

(*c*) The yellow flowered perennial Indian tree cottons (*Gossypium Obtusifolium*). These are confined to the northern parts of Gujerat and in the Coimbatore and adjoining tracts of the Madras Presidency, where it exists in conjunction with a perennial American cotton—the Bourbon. As in *Gossypium Arboreum* so also in *Gossypium Obtusifolium* its perennial nature and continuous liability to insect and fungus diseases militate against its extension. Its importance, from a scientific point of view, lies in the fact that it is possibly the parent from which all our indigenous cottons have originated.

Its derivatives may therefore be taken as—

(*d*) The *Gossypium Herbaceum group.* In Gujerat this produces the fine Navasari, Surat and Broach cottons. From Broach northwards it exists in a variety of inferior types. In the Southern Mahratta Country it produces the Kumpta cotton and in northern, western and partially in southern Madras it produces the northerns, westerns and partly Tinnies (*Uppam*).

(*e*) The *Gossypium Indicum* group which provides the Bani, Hinganghat, Jari (Khandesh Jari), Yerrapatti, Barsi, Karkeli and other strains in the Nizam's dominions and Tinny (Karangani). Owing to its low yield and poor ginning percentage this fine cotton is being rapidly supplanted by inferior but more productive and remunerative varieties.

(*f*) *The Gossypium Neglectum* group, which is the dominant species extending over the remaining cotton areas in India, such as Sindh, Punjab, United Provinces, Rajputana, Central India, Central Provinces, Khandesh, Bombay Deccan and Kathiawar. This exists in two parallel series, one with yellow flowers and better cotton *Gossypium Neglectum*, true, the other, with white flowers and inferior cotton—*Gossypium Neglectum*—variety Rosea. The latter, on account of its high yield, hardiness and general remunerativeness, is steadily supplanting the yellow flowered sorts. This is unfortunate as it means a marked deterioration in quality of Indian cotton over the greater extent of its area, but until the superior varieties attract prices more compatible with their quality they are bound to remain in disfavour. Looking at it from the point of view of profit to the cultivators only, Agricultural Departments in the provinces concerned are distributing pure seeds of these inferior white flowered cottons.

From Bengal and eastern side of the United Provinces another type exists—

(*g*) *Gossypium Intermedium.* In the trade the cottons derived from these do not seem to be distinguished from Bengals derived from *Gossypium Neglectum.*

In the hill tracts of Assam and Chittagong a close relative of *Gossypium Neglectum*—

(*h*) *Gossypium Cernuum,* characterized by its enormous bolls, in its purest form—the Kil of the Garo Hills—seems to be known commercially only as an adjunct in the manufacture of woollen materials.

In Burma the bulk of the cottons appear to be of the *Neglectum* type which extends onwards into China.

For a brief summary of our present position in the work of improvement in Indian cottons we may say that—

(1) Although the idea of having long standing plantations of tree cottons appeals to the magination, good reasons have been given why they cannot and should not be cultivated.

(2) There is a hopeful future for the annual red flowered cottons of the Punjab.

(3) In *Herbaceums* there is a tendency (which should be discouraged at all costs) to supplant superior varieties either completely or by admixture of inferior types. For instance, in Gujerat, much harm is being done by the introduction of Ghogari, an inferior *Herbaceum* of good yield and high ginning percentage. At the same time it has been proved in Gujerat and the Southern Mahratta Country that *Herbaceum*, even in its most appreciated forms, is capable of being sensibly improved by selection. Quality, accompanied by length of staple, was for long the single aim of the department, until it became influenced by the desire of increased percentage of cotton to seed which is the particular obsession of the trade in India. In striving to meet the desire for increased percentage the quality of some selections have already deteriorated.

(4) In *Neglectum*, which is everywhere a jumble of forms, the very worst Rosea or *Neglectum Roseum* has been selected by the cultivators on account of the greater profit realized from it. Some of the finer constituents of the mixture give cotton quite equal to that from the best *Herbaceum*, and if the trade choose to have these developed they must pay a better price for them.

(5) In *Indicum*, Bani or Hinganghat, the low yield rules it out.

(6) Throughout India, improved varieties of good staple could easily replace those of inferior quality if only some guarantee be given that the cultivators would not be the losers by the exchange. There are many practical difficulties in the way but the method of holding certified auctions as arranged by the department in Bombay points the way out of one difficulty, and much in the shape of help in this direction can also be expected and is already exercised by agricultural associations and co-operative societies.

*Foreign varieties of Cotton acclimatized in India.*

From the very inception of the idea to use India as a source of supply of staple cotton it has been tacitly assumed that the indigenous cottons were so intrinsically worthless that no one ever threw out the suggestion that they could be used to meet the finer requirements of foreign commerce, and efforts were systematically directed towards the establishment of exotic cottons of American origin by American methods. These have been tested, at long intervals, throughout the cotton tracts and, in many instances, beyond them. The majority of the results were disastrous and in the end it was taken as proved that acclimatized Upland Georgian and New Orleans could only be grown as a dry ground crop in the Southern Mahratta Country of Bombay. It was also accepted that they would thrive as irrigated crops in Sind, Punjab and the United Provinces. Of late years—*Bhuri*—an upland acclimatized in Chota Nagpur, has met with a moderate amount of favour as a crop in wilt infested areas of the Central Provinces and in the south of Madras—Cambodia—an upland from Cochin China, gave remarkable results under irrigation and would have become a perennial source of supply of the much desired staple cotton had not the inveterate method of adulteration ruined its reputation.

Only one American tree cotton—Bourbon—has kept a footing in India, as a field crop in admixture with Nadam in Coimbatore and sporadically in temple gardens throughout the country to supply sacred threads spun from its cotton. Of the many more that have been tried, all failed everywhere, being no more proof against disease and insects than the indigenous tree cottons.

To sum up the principal results of the attempts to acclimatize exotic cottons in India, we see that—

(1) There are only certain parts of India suitable for exotics and these parts are indicated mainly by their facilities for irrigation, in particular Sind, Punjab, United Provinces and parts of Madras. Two acclimatized sorts—*Bhuri* and *Cambodia*—can be grown also as dry crops in the Central Provinces, Southern Mahratta Country and probably throughout the cotton tracts generally. The upland Georgian and New Orleans have been acclimatized and grown as dry crops for many years past in the Southern Mahratta Country.

(2) One important fact that has emerged from the researches of the Agricultural Department is that upland Georgian, a hairy plant, is far hardier, freer from disease and has better cotton than the smooth New Orleans, which is subject to insect attack, is less hardy and has inferior cotton.

The bulk of American cotton now grown in India is therefore upland Georgian, although primarily it consisted of an intimate mixture of this with New Orleans.

(3) Foreign tree cottons are no more satisfactory than the indigenous, and they are not cultivated, excepting Bourbon, which has already been mentioned.

*(Mr. Gammie did not give oral evidence.)*

## WITNESS NO. 348.

### MR. KARIMBHOY ADAMJEE PEERBHOY, *Partner, Sir Adamjee Peerbhoy and Sons, Bombay.*

### WRITTEN EVIDENCE.

*Q.* 1. Is the leather tanning industry in a satisfactory and a prosperous condition ?—*A.* I should think not, in normal times. At the present time owing to the abnormal demand created by the war, the industry is in a flourishing condition, but this is only a transient condition. The tanning is mostly carried out by the primitive methods, and the "bag-tanned" quality thereby obtained is necessarily inferior.

*Q.* 2. If not, what are its difficulties or disabilities ?—*A.* In normal times, the English market on various occasions makes so low offers for leather tanned in this country that it leaves no other alternative to the exporting tanners here than to accept them at a ruinous sacrifice in preference to getting them back from England or incurring heavy warehousing rent there. The Indian tanners have not a suitable agency in India to make them firm offers here before export.

*Q.* 3. In what way can these difficulties or disabilities be removed ?—*A.* The only suggestive way to cure the present disabilities would be to export tanned leather on firm offers or to set up in this country an agency which, under proper control, would buy up, at fair prices, the available tanned leather for export. Then, again, to improve the quality of the leather now turned out the men in the "bag-tanning" habit should be brought up to do "*pit-tanning.*" This would enable them to fetch better offers for their turn-out and open their eyes to better possibilities; for art of pit-tanned leather useful articles, such as durable beltings, can be made; no doubt, the bag-tanned leather admits sometimes of beltings being made from it, but these beltings invariably fail to answer their purpose and are not at all durable. From pit-tanned leather, tanned and curried in the country, beltings equal to, if not better than, foreign beltings can be made.

*Q.* 4. Is there any particular question in connection with this industry that you consider important enough to be investigated by the Indian Industrial Commission ?—*A.* The question worth while to be investigated is the paucity of the factory-type tanning industry in the country. The existing factories, which barely count one for each province, are practically neglected by the State in favour of a single factory at Cawnpore. If the State would uniformly patronise the factory industry, it would stimulate the growth of factories. The provincial Governments should look to the industry in their own respective provinces to supply them their requirements, and the Government of India should invite supplies from all the provinces and bring about a healthy competition.

*Q.* 5. Is there any other industrial question of general interest that you wish to suggest for the consideration of the Commission ?—*A.* I would suggest that, with a view to develop the industry in this country,—

(1) a heavy duty be imposed on exports of raw hides.

(2) a protective tariff be levied on all leather manufactured imports from foreign markets; and

(3) an agency under proper control be established to buy all available tanned leather at fair prices and export.

*Q.* 6. Do you wish to give evidence, either written or verbal, before the Commission ?—*A.* I should like to send in my *written evidence* and would amplify it by *verbal evidence* if found necessary.

*Q.* 5. What are your opinions on the following methods of giving Government aid to existing or new industries :—

(1) money grants-in-aid ;

(2) bounties and subsidies ;

(3) guaranteed dividends for a limited period, with or without subsequent refund to Government of the expenditure incurred in paying dividends at the guaranteed rates ;

(4) loans, with or without interest ;

(5) supply of machinery and plant on the hire-purchase system ;

(6) provision of part of share capital of companies on the same basis as public subscriptions of capitals ;

---

The Police, Excise, Customs and similar other Provincial departments ought to draw their supplies from the industries in their own respective provinces.

The requirements of the Military and similar other Imperial departments should be drawn from the entire field of the industry in India and not from one favourite source to the exclusion of all others.

(7) guaranteed or preferential Government purchase of products for li
and

(8) exemption for a limited period of the profits of new undertakings fro
and exemption from any tax on an industry, or on any article used in a

*Q*. 6. In which methods of Government assistance should there be Gove
or supervision ?—What should be the form of such control or supervision,—e.,
audit or appointment of Government directors with defined powers for the
which direct assistance lasts.—*A*. The patronage of Government would mat
industry, and whenever the products of the industry can be utilized by Gover
Government should buy to the largest extent possible and should have the pr
purchase of those products. They should strictly guard against monopolies
be avoided, and should encourage local industries whenever they exist as muc
their power.

*Q*. 8. In what ways and to what extent should Government pioneer i
what stage should pioneer factories be either closed or handed over to privat
companies ? What limits and restrictions, if any, should be imposed on th
successful pioneering experiments into permanent Government enterprises ?—*A*
might pioneer industries in India, *i.e.*, those industries not already in existe
starting of which sufficient public capital is not forthcoming, and as soon as th
they should be handed over to the public. When Government find that suffi
taken in the industry to enable the public to invest money in industry, they s
from the enterprise which they might well then leave to capitalists to carry out

*Q*. 13. What principles should be followed in order to prevent Governm
ing with existing or discouraging fresh private enterprise ?—*A*. When an in
careful inquiry should be made, and if it is found that it is failing for want of (
such aid should be extended to it. If a remedy cannot be found to run it succ
permanent Government aid, then Government might buy such an industry ov

*Q* 15. What is your personal knowledge or experience of technical
provided by Government to industrial enterprise ?—*A*. In my opinion, th
scientific aid provided by Government is not sufficient ; there should be a techni
institute established in the towns in which industries exist or in their vicinity s
the study of the industries near by.

*Q*. 16. What is your personal knowledge or experience of noticeable b
by local industries from researches conducted by Government departments ?—
not of any researches carried out by Government concerning the leather indust

*Q*. 17. On what conditions should the loan of Government experts be
firms or companies ?—*A*. *Conditions*.—At a reasonable remuneration.

*Q*. 18. Under what restrictions and conditions would you allow publicati
of researches made by a Government paid expert while attached to a priv
*A*. Results of researches made by a Government expert while attached to a
should not be published without the consent of the proprietors of the busines
furnished with the report of the expert and should have the option of charging
of publication.

*Q*. 29. If you think commercial museums should be developed and incre
what suggestion have you to make regarding their situation, arrangement an
In every metropolitan town there should be a commercial museum worked
from the industries and managed by industrial representatives.

*Q*. 30. What is your experience or opinion of sales agencies or commer
the sale as well as the display of the products of minor and unorganised cotta
*A*. My opinion is that emporia should be established in all large towns for th
sale of products of minor and unorganised cottage industries which are likely t
The cottage industries could from time to time be investigated and reporte
loaned by Government (as required) to the commercial museum.

*Q*. 30-*a*. Would travelling exhibitions of such industries be of advantag
ling exhibitions would be of advantage as they would bring unknown produc
of buyers. Industrial exhibitions help to bring the producer and the consume
and the awards given at such exhibitions encourage better production.

*Q*. 32. Should Government take measures to hold or to encourage su
if so, what should be the Government policy ?—*A*. Government should encou
of exhibitions. Their control need not go beyond appointing a Managing
partly of Government officials and partly of representatives of industries.

*Q*. 33. What should be the nature of such exhibitions ?—*A*. The
aim mainly at bringing sellers and buyers into contact, but they should in t
popular.

*Q.* 34. Should trade representatives be appointed to represent the whole of India in Great Britain, the Colonies and foreign countries? What should be the qualifications of these trade representatives? How should their duties be defined?—*A.* There should be trade representatives in England and the Colonies for those products which are likely to be sold there. These trade representatives should have knowledge and experience in connection with industries in India. They should travel from place to place and seek for openings for the sale of the products.

*Q.* 35. In addition to these trade representatives, would it be suitable in some cases also to have temporary Commissions for special inquiries?—*A.* Yes, if *special* inquiries seem called for.

*Q.* 36. Should provinces in India itself have trade representatives in other provinces?—*A.* Not necessary when there are established emporia in the Provincial towns.

*Q.* 37. Should the principal Government departments which use imported articles publish lists of these articles or exhibit them in commercial museums?—*A.* Yes. Government might exhibit the articles used by them. There is apparently no reason why they should not also publish lists.

*Q.* 38. With reference to the encouragement of Indian industries, have you any criticisms to offer regarding the working of the present rules relating to the purchase of stores by Government departments. Have you any changes to propose in the rules themselves?—*A.* Yes. Government patronage should be impartially distributed. The tendency is to favour those who are near the source of patronage. The factories should be evenly patronised according to the capacity of each, and there should be fair play and no favour. There is, for instance, the case of a firm who have held the monopoly for the supply of boots, etc., etc., to Government for upwards of 30 years. Even at this time of emergency, they are working day and night over boots and other leather articles, while other similar industries are only partially utilised or not utilised at all and are suffering.

*Q.* 110. What suggestions have you to make for the development of any industry in which you have been actively concerned or interested?—*A.* The development of any industry in my opinion, among other things, depends upon the encouragement received from the local authority. What I mean is, that, if Government and other bodies were to give a preferential patronage to the factory-type industries in their own respective provinces rather than to crude articles of the so-called shop manufacture, modern methods and appliances will receive encouragement, and factory-type industries will tend to develop. Patronage, moreover, should not be given to factories attached to large institutions, etc., such as Railway workshops which have already sufficient to do.

## *Addendum.*

I should like to add a few words regarding our experience of the want of encouragement accorded by Government to purely Indian concerns in the leather industry and the partiality displayed for giving patronage to rival European firms in this country.

The Western India Army Boot and Equipment Factory (Sion), Bombay, was started in 1887, by our firm at the instance and urgent request of the Government of India for their supplies of leather and leather articles, as no firm in those days would come forward to take the risk of sinking capital in such an industry.

The Factory began in a very small way with a shed for the Currying Department.

The Factory was gradually augmented and improved by the addition of some hundreds of tanned pits, and department after department was fitted up, with costly and the most up-to-date machinery and appliances, at the suggestion of Government from time to time at the cost of several lakhs of rupees. Professional tanners, curriers and other leather experts, who materially improved the training and attainments of the large local staff, were specially brought out from Europe.

In spite of our enterprise and the admitted state of efficiency to which the Factory had been brought and the considerable capital invested at the instance of and to meet the requirements of the Government, the latter abruptly terminated their contract in 1910, as a result of some small difference between ourselves and a certain officer who wished to impose certain conditions to which we demurred. This was done quite arbitrarily and without according us the consideration, such as a proper adjudication of the matter, to which we were entitled. Only just prior to this we had laid out about a lakh of rupees in improvements. For more than 15 years we supplied practically half of the whole requirements in leather of the Indian Army.

Since then, as a result of our repeated representations to Government on this behalf, a trial order for manufacturing articles was at length given, and these articles were supplied to the entire satisfaction of Government.

When war broke out I was on the continent. I went to London and approached the India Office, and the War Office, where I met the highest officials. They asked me whether we could manufacture saddles for immediate supply to Government, as the Government in England wanted more saddlery and other things than what the Government of India had undertaken at that time to supply.

On my undertaking to do so, the India Office wired the Government of India to inquire from our firm for saddlery, etc. This request was telegraphed several times, but the Government of India paid no attention to the repeated urgent requisitions of the India Office and, furthermore, even up to this time we have not been referred to on the subject. On the other hand, the order for the entire requirements over and above what the Harness and Saddlery Factory could turn out, was placed with Cooper Allen & Co. This requisition, we believe, Messrs. Cooper Allen & Co. were unable properly to execute.

The Factory commenced manufacturing Army boots long before the year 1900. The firm before 1900 approached Government with a view to obtain a fair share of their orders for Army boots. This request was not complied with. At the time of the last Boer War, though Government were in need of Army boots and we approached Government, no order was given. The firm thereafter approached Lord Roberts, the then Commander-in-Chief in South Africa, and made an offer for an immediate supply of boots. This offer was accepted and the consignment of boots was sent to South Africa with me as a member of the firm. This consignment was accepted and gave satisfaction. I then left for England, approached the War Office in London for the order of boots for which Government were in great need. A contract was nearly settled, but on some technical ground it was referred to the India Office and they informed the War Office that as the Factory was located in Bombay the contract could be given only by the Government of India. It was thus decided to leave the matter to the Government of India to approach us to arrange for the supply. This order was secured and sent to India on my initiative. But when the order came to this country, it was given to Messrs. Cooper Allen & Co., and no reference was made to us at all on the subject. Before this contract was placed with Cooper Allen & Co., my firm approached Lord Curzon, at that time Viceroy and Governor-General of India, explaining to him fully as to the order from England, he then expressed his desire to visit and inspect our Factory, but other influences intervened and he was taken to a competing Factory. His visit to our Factory was averted and never paid.

Soon after this event, the ten years' contract—an abnormally long period—of Messrs. Cooper Allen & Co., was drawing to a close. We represented this matter to the Government of India who informed us that tenders would be invited. But in spite of this, before any tenders could be invited, a further ten years' contract was given to Cooper Allen & Co. We represented the matter to Lord Sydenham, late Governor of Bombay, who very kindly advised us to send him a petition on the subject, in the meantime visiting our Factory as an encouragement of a neglected industry in his Presidency. We petitioned him in the due course and he forwarded our petition to the Government of India with strong recommendations and personally took this matter up on his subsequent visit to Simla, but even then the influence of our rival firm was so great that even the interest of so high a personage was of no avail to secure for us the bare justice of due consideration.

Soon after, however, the Government of India was forced to call for tenders. These tenders were called in the year 1911. Messrs. Cooper Allen & Co. failed to follow the rules laid down for submitting tenders and their rates were higher than ours. There would have been a saving of nearly 12 lakhs and 25 thousand rupees to Government if our tender had been accepted. As a result of some mysterious influences which were brought to bear, fresh tenders were invited. Again our rates were lower and the saving to Government would have been in the same proportion.

In the face of this and in spite of the higher rates, the contract was given to Messrs. Cooper Allen & Co. for another ten years. After the war broke out during the first year or thereabouts, though we approached Government on the question of supplying boots, we had no satisfactory response with the exception of a very small order in 1915. Since then we have been asked to supply a lakh of pairs only which have been supplied.

When this order was in force we were in negotiation with Government for a further order and the terms of this order were settled and *concluded*. The Indian Munitions Board, to whom the matter was transferred on its establishment, is now endeavouring to cut our order by one-third. The object of these attempts is unknown to us, but the result is to favour European manufacturers. In India there are various industrial centres where Army boots and such leather articles as Government require can be had, such as the Chrome Leather Factory at Madras, the Factory at Gwalior, a Factory at Cuttack and factories at other centres. The Cawnpore European Factory supplying these articles to Government, we believe, are supplying about twelve times more than they did in peace time, and if even one-third of the supply entrusted to them were distributed among other industrial centres, the result would be appreciated, and the purely Indian industry would receive some share of the encouragement it ought to get. At present it is languishing by reason of the neglect it suffers through partiality shown for European manufacturers at Cawnpore. We are willing to submit to any test of our capacity to turn out goods equal, if not superior, to those now enjoying the favour of the Government departments concerned.

In conclusion, I desire to mention that when Sir Thomas Holland, the President of the Indian Industries Commission, was transferred to the Munitions Board, I addressed a letter to him inviting him kindly to pay a visit to our industries to judge of our resources for the supply of various requirements for war purposes. Perhaps he was too busy to find time to pay a visit to our Factories, though he visited others near by. Had he done so, he would doubtless have been convinced of our having been most unjustly treated, whereas we could have been the means of saving Government lakhs of rupees of public money.

---

No. T. 850-I, Tent Factory, dated Bombay, 14th November 1917.

From—Sir Adamjee Peerbhoy and Sons, Proprietors of Adamjee Peerbhoy Tent Factory, etc.;

To—The Secretary, Indian Industrial Commission, Bombay.

I represent the firm of Sir Adamjee Peerbhoy & Sons, Proprietors of the Adamjee Peerbhoy Tent Factory, the Western Indian Army Boot and Equipment Factory, the Adamjee Peerbhoy Spinning and Weaving and Manufacturing Mill and the Matheran Steam Railway. Our firm was founded in 1865, and ever since we have been Government contractors for tents, leather, and similar equipments for the Indian Army, nearly half these requirements, we may say, have always been met by us. We have built up a large industry in these respects in Bombay, and employ several thousands of hands. We have throughout given satisfaction to Government with our supplies. During this war, however, we regret to say a tendency has been shown to favour European firms to the detriment of ourselves and the Indian industries in general. I have confined myself, however, in the following statement to certain aspects of the matter which are speedily within my knowledge and which particularly affect the industries with which my firm has been connected and which it has largely created over a period of more than half-a-century. I wish it to be understood that nothing contained in my statement is to be regarded as of a confidential character. Such matters which may be described as confidential I have no desire to place before the Commission. I have already put in my full evidence regarding the leather industry of the firm; the subjoined statement refers to the tent manufacturing industry which affects the mill industry, and I submit that the matters stated are of vital importance to the preservation and progress of this industry.

2. We supplied E. P. Private tents at our peace contract rate, *viz.*, Rs. 378, while other Indian contractors increased theirs by about Rs. 20 per tent, and Cawnpore mills tendered supplies at about Rs. 400 per tent. In the year 1916, when the mills saw that our supply was hampered, they commenced increasing their rates, and at present they are supplying these at Rs. 485. We have had to ask for an increase on our original rate for E. P. Private tents, *viz.*, Rs. 400, on account of higher rates of cotton and scarcity of dyes (we being the only firm in India who have been supplying buff and red coloured cloth tents), and this was granted us in January 1917, but, unfortunately, from this date only 300 tents have been accepted from us.

3. We have on many occasions telegraphed to the Director of Ordnance Stores bringing to his notice the inferiority of tents and other materials supplied by the Cawnpore Mills which we happened to see in Bombay, but no notice was taken. We even asked him to give us on payment complete tents manufactured by the mills for our guidance, but this request was also refused.

4. As long as experienced Arsenal officers were attached to the Bombay Depôt for passing tents and other Military stores we supplied lakhs of rupees worth of stores, but, since the appointment of an A. I. G. S., who was employed in Burma in a private firm dealing in wood and who is merely an Indian Army Reserve Officer, having absolutely no training or experience of textiles and no experience of Army tents, has been placed in independent charge of the inspection and passing of Army tents and hundreds of other Military articles required by the Ordnance Department from India and Overseas, now our supplies are hampered by him. We have complained that no experienced Arsenal officer was ever deputed to inquire instead of men of the same calibre of those of whose experience we complain. The intention of all this seems to be to patronise the Cawnpore Mills. We say this openly, because no fault is found with the tape, cordage and cloth which we supply to other mills and the contractors to be used by them, in the manufacture of tents, but when the same material is used by us and our tents are tendered for inspection by the A. I. G. S. at Bombay, they are not passed on the ground of different alleged faults in this respect. At least 50 experienced Arsenal officers have, during 52 years, spoken most favourably of our tents, but now inexperienced officers are entrusted with this work and their decision is held by the authorities to be unassailable. We may mention that throughout the South African and other wars we supplied the bulk of the tents for the Army to the entire

satisfaction of the Department, and our services were acknowledged by General Wace, the then Director-General of Ordnance, who declared that, without our assistance, the tents for South Africa could not have been supplied.

5. Other Indian contractors are buying cloth, tape and cordage largely from us and supply tents satisfactorily to different Arsenals at Rs. 400 per tent. But any request on the part of these contractors for more and larger orders is refused, while the Cawnpore Mills are favoured by being given higher rates and larger orders. The result is, that Government pays Rs. 85 in excess, *plus* Rs. 10 per tent, to bring them down to Bombay, and loading, unloading and other incidental charges. The higher rates paid to the Cawnpore Mills, *viz.*, from Rs. 400 to Rs. 485, have been consistently supported by the Inspector-General, Stores, Cawnpore, who is not supposed to recommend the acceptance of such offers, but is merely an Inspecting officer and not an Executive officer. His recommendations in the interests of the mills have been continually accepted in the face of the lower rates at which Indian contractors were ready to supply with one exception. In August 1917 the Cawnpore Mills asked for an increase of about Rs. 120 over their original price of 1914. The recommendation to accept this offer made by the Inspecting officer at Cawnpore was submitted to the Munitions Board, who had then come into existence, and, thanks to the Board, it was rejected. This is an illustration, however, of what has been going on. Subsequently, however, the mills reduced their proposed rate by about Rs. 30, bringing the cost of an E. P. Private tent to Rs. 485, an absurdly high price, and this was accepted. Obviously it was only due to the recommendation of this inexperienced Inspector that this high rate was accepted.

6. It is notable, in addition, that the Cawnpore Mills are not supplying cloth of aniline dyes which we alone do. Our tents are manufactured from cloth for which aniline red dyes are used and are therefore more suitable, hygienic and comfortable for hot climates. Officers from France, Egypt, British East Africa and Mesopotamia, who have returned from the front, have frequently expressed this opinion to us.

7. We have observed that very inferior stuff, such as Sulleetahs, etc., made of coir matting, canvas, hessian and other inferior stuff which are against the Ordnance specification, instead of gunny double which every other contractor in India is supplying, is constantly tendered by the Cawnpore Mills and inspected by the Inspector there and arrives in Bombay. We have on more than one occasion telegraphed and written to the Director of Ordnance Stores pointing out the inferiority of the stores passed by the Inspector at Cawnpore. A number of pins, poles and mallets were scores of time found to be full of ghoons and in such a broken and rotton condition that they had to be thrown away. If officers, who were at the Bombay Depôt and at the Docks, who have seen the above stores, were to be consulted, we feel sure they would testify to this statement. If a surprise visit is paid to the Bombay Depôt, we feel sure that many articles in stores of Cawnpore Mills and inspected and passed by the Inspector at Cawnpore will be found contrary to the specification and much inferior than what is supplied by a dozen other centres of the Ordnance Department.

8. There are at Rawalpindi, Ferozepore, Delhi, Agra and Allahabad long-standing Indian contractors who have been supplying, satisfactorily, tents, and which are inspected and passed by experienced Arsenal officers. We do not understand why only at two centres, Cawnpore and Bombay, two officers of the Inspection section should be appointed to inspect and pass tents to the Ordnance Department required for the service in India and Overseas. We consider that no officer who has had no Arsenal experience should have been entrusted with this work. The officer at Bombay is quite raw, having no experience whatever except, perhaps, of Burma timber. By the appointment of this officer the whole business had to stop, which could have been avoided, had the department appointed one of the many officers with Arsenal experience. It therefore conclusively proves that Inspecting officers from the Arsenal should not be outsiders but those who have passed many years in the Arsenal in inspecting and passing the stores.

9. The sample tent manufactured by the Elgin Mills recently given to us by the Kirkee Arsenal to guide manufacture is still with us, and if this is compared with the tents which we supply, it will be seen that our tents are 50 per cent. superior to those supplied by the Elgin Mills. This is equally applicable to tents supplied by other mills which can be seen at any Arsenal or any other place in India.

10. It is our pride that in all times of war we have promptly assisted Government and never taken any advantage of a crisis by increasing our existing contract rates.

11. Had we not been obstructed in supplying tents and other stores required by the Ordnance Department, owing to the action of the inexperienced officer at Bombay, there would have been a saving of many lakhs of rupees to Government on account of high rates, freight charges, etc., and moreover, the railway would have been free of the anxiety of arranging for the supply of wagons, etc., which could have been better employed elsewhere owing to the notorious shortage of wagons, coal and engines.

12. For the sake of fairness, justice, and equality of treatment we submit that when long standing tent manufacturers of proved capability of Rawalpindi, Ferozepore, Delhi, Agra and Allahabad have been satisfactorily carrying out the supply of tents and who only receive orders to meet barely one-fifth of their capacity from time to time, have been entrusted, *viz.*, from 100 to 200 E. P. Private tents at a time,—it is much to be deprecated that the Simla authority should tell them upon their requesting them to place further supply orders with them that no supply was needed, and place in the same breath (within 48 hours) an order from 1,000 to 1,500 tents with Cawnpore favoured mills, and this, too, at 70 to 90 rupees more per tent. On the one hand, this is sheer waste of public money, and on the other hand it is killing Indian enterprise and crushing the industrious spirit among the Indian people who work in their fair and legitimate field.

13. We have supplied 20,000 large and small tents and other stores, such as canvas, canvas articles, *viz.*, nose bags, tarpaulins, bags, sea kit, head stalls, etc. We supplied headstalls at an instant's notice at much cheaper rates than could be supplied by any one in India. Had we not promptly supplied, these units would not have gone to the different fronts complete. The reason presumably that the mills at Cawnpore and other contractors failed to offer to supply head stalls is that there is not much profit on these, and there is more profit to be made on tent supplies. The Ordnance Department could have insisted on their supplying these, but unfortunately we only were requested to do this which request we complied with promptly.

14. In conclusion, I may mention that a monopoly for supplying tents before the year 1872 was in the hands of Fatehgarh and Jubbulpore contractors, there being no tent manufacturers in Bombay, but to encourage this industry, our firm at great expense and trouble and at the request of Government embarked on the manufacture of tents in Bombay, and since then we have been supplying to the Ordnance Department satisfactorily. We feel very strongly that a policy has been pursued during the present war of encouraging European firms, without previous experience in these lines to the detriment of ourselves and other Indian contractors. We have repeatedly protested against this in the proper quarters but without avail. We are willing to accept any sort of test or inquiry into the matter in order to prove our case and to show that we, as an Indian firm which has built up an important industry, have been the object of an unfair discrimination, which if permitted to continue, is calculated to destroy the purely Indian industry and to involve, as it has already involved, heavily and unnecessarily increased expenditure of public funds, while at the same time efficiency and quality of supply is decreased.

### ORAL EVIDENCE, 29TH NOVEMBER 1917.

*President.*—*Q.* You were unable to accept our invitation to appear before the Commission on the 13th ?—*A.* Yes. I was unable to come. The day did not suit me.

*Q.* You received our letter dated the 31st October ?—*A.* On the 6th November.

*Q.* Were you absent from Bombay ?—*A.* I was out.

*Q.* When you got the letter on the 6th November, did you write to us at once that you could not attend on the 13th ?—*A.* No. I think I wrote a day after my arrival.

*Q.* The letter that you wrote was dated 12th ?—*A.* 12th, that is, a day after my arrival.

*Q.* You did not take care to warn us until a day before you were asked to appear ? You were to appear on the 13th and you wrote on the 12th that you were unable to come ?—*A.* I got it late myself.

*Q.* You got it on the 6th ?—*A.* It was received on the 6th and I was absent. It was received in the office. I think I got it on the 10th. The letter was dated the 31st.

*Q.* You wrote on the 12th to say that you could not appear on the 13th ?—*A.* Yes.

*Q.* We found very great difficulty in rearranging the programme and suiting your convenience, because the programme is made up beforehand and when there is a dislocation we cannot put in another witness in that place.—*A.* I did not consider it so very important, because I thought you had to stay here 10 or 12 days, and it could be conveniently arranged. Besides it was left to me whether it would suit me.

*Q.* You did not think it was also equally necessary to suit us ?—*A.* Certainly.

*Q.* In any way, in your reply to the Secretary of the 20th November, you accused him of want of courtesy or seemed to insinuate that there was want of courtesy on the part of the Secretary.—*A.* Yes, because I was charged that I did not reply in time. I said that he took a week to reply to me.

*Q.* You gave us notice on the 12th that you could not appear on the 13th and you did not consider that it was want of courtesy to the Commission in not suiting yourself to the Commission.—*A.* The Secretary took about a week longer.

*Q.* You think he did it purposely ?—*A.* If he has not done it purposely I have not done it purposely too.

*Q.* You should not charge other people with motives.—*A.* I have not got any motive.

*Q.* It is difficult to undertake correspondence with you if you take it for granted that the other man is always in fault.—*A.* I do not mean that. If I am blamed by some one for nothing, there is nothing wrong if I blame him.

*Q.* Would you like the whole of your evidence to be taken in public ?—*A.* Yes, in public.

*Q.* Because there are statements that you make which will have to be examined in some other place than here.—*A.* I should like to have my examination publicly, because I consider it is a public question.

*Q.* Some questions are not of direct public interest except that they have an indirect bearing on public questions, but the Commission is unable to investigate as a Commission the whole of the charges you bring against individual officers. In order to investigate these charges the Commission would have to take the evidence of a large number of officers which it is impossible to do in a general inquiry of this kind. So, you will understand that we cannot very well investigate the charges against individual officers without giving those officers an opportunity publicly of clearing the charges against them and also of expressing, if they wish, their views on you and on your firm.—*A.* In that case I am ready to come and meet the Commission anywhere in any part of India to give my evidence, if so desired, where these officers may be called by the Commission.

*Q.* As I told you, it is not the business of the Commission to inquire and investigate the disputes between your firm and individual officers, but to have your views on general industrial questions.—*A.* A witness cannot express himself clearly unless he quotes his own experience in the evidence.

*Q.* You say that your firm was founded in 1865 and has since been the supplier of Government tents, leather and similar equipment for the Indian Army. Your father was in charge of the firm then ?—*A.* In the beginning.

*Q.* When did he die ?—*A.* 1913.

*Q.* There has been a change in the management of the firm since 1913 ?—*A.* My father, since fifteen years before his death, took no part in business. It is we brothers who managed and carried out all business.

*Q.* Did you represent your firm in Simla ? Did you see the Secretary of the Army Department and the Director-General of Ordnance early in the war ?—*A.* No.

*Q.* Your representatives ?—*A.* One of my brothers.

*Q.* Did he discuss the question of taking up army contracts ?—*A.* Yes.

*Q.* Has your firm always been on the approved Government list ?—*A.* Certainly.

*Q.* Was it on the approved Government list at the beginning of the war ?—*A.* Certainly. You will allow me to bring my correspondence. I know what point you are now referring to. If you further wish to put me any such questions, I am ready to reply, provided you give me some time to get my files, which I can soon get from my office. I have got here all the papers pertaining to the questions before the Commission, and not those regarding the points you are now referring.

*Q.* You see how difficult it is to discuss these questions in public ?—*A.* It is not at all.

*Q.* It would be much better if you confined your evidence to questions of purely public interest and leave the other matters that you complain of against individual officers to the authorities to deal with them, and I have no doubt that they will deal with them fairly.—*A.* I have not gone into details. I have given simply the general outline of the whole affairs.

*Q.* But those general details are fairly precise, because they accuse a particular individual officer.—*A.* That was the reason why I invited you to visit my factory, because when you go to Simla, the Simla clique is so powerful that whoever goes there changes his opinion very soon, and with that intention I invited you to come and see beforehand the works and the institution and see them in detail, so that you might not be prejudiced by the Simla authorities, and here I say—and you will excuse me for saying—that you are somewhat—

*Q.* You are not here to judge.—*A.* I express my opinion, when I am asked.

*Q.* You say " During this war there is a tendency shown to favour European firms to the detriment of ourselves and the Indian industries in general."—*A.* Yes.

*Q.* That is a general statement that you are quite free to make and that is one on which we should like to get your views. That is in relation to the purchase of tents ?—*A.* Both leather and tents.

*Q.* You specially refer in this letter to tents. When you say that there has been a tendency shown to favour European firms, is that shown by the list of firms that have received orders from the Ordnance Department ? During the past year, the firms that have received orders are (here a list of firms was read). There are more Indian firms than European firms according to that list.—*A.* Would you please show me how much each individual firm is given ?

*Q.* With regard to quantities I cannot tell you.—*A.* That is where the whole secret lies.

*Q.* I can give you the secret. You will find that the general arrangement has been that only if the Indian firm cannot supply the total quantity of tents, the excess has been given to English firms.—*A.* May I illustrate with some examples ?

*Q.* Examples of what ?—*A.* How Indian firms have been patronised. I should like to illustrate how they are patronised.

*Q.* So far as I see, they have the same patronage as any other firm.—*A.* You give one pie work at a time to an Indian firm whose capacity of supplying is six annas.

*Q.* I do not think that it is quite fair to make the statement that there is a tendency to favour European firms instead of Indian firms, because that list does not show it, and, so far as I remember, the orders that have been given have been given to the full capacity of all the firms. —*A.* No. It is not correct.

*Q.* We will assume that you know better about it. There is one statement here that I cannot reconcile. In paragraph 3 of your letter of the 14th November you say that you have on many occasions telegraphed, etc. Then in paragraph 9 of the same letter you say, "The sample tent, etc."—*A.* That was so in the early stage. What I refer to in paragraph 3 was in about 1915 and this tent that I refer to in the other part of the letter was given to us about six months ago.

*Q.* Your letter was written after both ?—*A.* Yes.

*Q.* You say in paragraph 4, "No experienced Arsenal officer was ever deputed, etc.," but do you remember that Colonel Young inspected your place ?—*A.* Yes. When the E. P. tents, which had been lying in Bombay Depôt unpassed for months together, were ordered to be taken at once, when Director of Ordnance Stores was also present.

*Q.* Did not Colonel Archer also inspect ?—*A.* That is lately, at this time also E. P. tents which had been lying unpassed for more than six months were ordered to be taken.

*Q.* And do you remember Major Spalding making any inspection ?—*A.* That is inspection branch. I refer to him in the inspection branch. When Colonel Young came here, those tents were lying there and he ordered them to be passed immediately, and by the time he went, within the next three or four days, all the tents were received in.

*Q.* You have had contracts for boots from the Quartermaster-General ?—*A.* Yes.

*Q.* Was your last contract completed ?—*A.* Yes.

*Q.* When did that contract end ? On what date should it have ended according to the contract ?—*A.* According to the previous arrangement it should have ended six months after September, that is, March.

*Q.* When did you complete the supply of boots according to that contract ?—*A.* I believe August or September, I do not exactly remember, but that was according to an arrangement between me and Colonel Thomas.

*Q.* Not according to the contract ?—*A.* That was according to the contract as arranged, but there was a subsequent understanding with the head of the department as he negotiated with us for a further supply of boots to Government. We told him that we would take the contract, provided he gave us an early reply to make our arrangements. During the period we had to remind several times the Quartermaster-General for an early reply, as these men whom we have engaged were skilled hands and they had been paid in advance, and for that purpose I said "if you wish to give orders tell us soon, so that we may retain them. If you [illegible] not reply soon, then we must pull on with these men with some sort of work. Once the [illegible] men leave the factories it is very difficult to get them back, besides we would lose the whole advanced amount." Till Colonel Thomas could decide to give any reply one way or the other we had to pull on with this order and that was the arrangement between us.

*Q.* Your order was completed in August instead of March ?—*A.* Yes, but [illegible] was according to the arrangement.

*Q.* You are quite sure that it was completed in August ?—*A.* August or September. I told you that in the beginning.

*Q.* You are quite sure ?—*A.* August or September.

*Q.* Have you received a new contract from the Munitions Board ?—*A.* We just got [illegible] after I sent in my written statement. We got the whole order confirmed, what was arranged between us and the Quartermaster-General.

*Q.* After what statement ?—*A.* The written statement sent to the Secretary mentioning about the contract we had concluded with the Quartermaster-General. The Munitions Board cut it down to two-thirds and wanted to deprive us of 50 per cent. of optional quantity, for which we had to write to the Munitions Board on the subject.

*Q.* What do you mean by the optional quantity ?—*A.* We had to supply two lakhs of pairs *plus* 50 per cent. at our option. When this matter was transferred to the Munitions Board, they wanted not to give us the optional 50 per cent. more and they wrote to us that they would give orders for only 2 lakhs of pairs. Then we had to write to the Munitions Board that this was part of the agreement and then they said that they would allow also the 50 per cent. optional supply as per the agreement.

*Q.* That is to say, they have allowed this extra 50 per cent. ?—*A.* Yes.

*Q.* You say they did that in consequence of your having written this letter to the Secretary of the Industrial Commission ?—*A.* No. After I wrote this to the Secretary we got the confirmation of the whole order.

*Q.* You do not say that it was in consequence of that ?—*A.* How could I say one way or the other.

*Q.* The letter to the Secretary and the letter from the Munitions Board are exactly of the same date and there could be no collusion. Clear your mind of that ?—*A.* It may be that.

*Q.* You have got that contract ?—*A.* Yes.

*Q.* And that will keep you in full working order ?—*A.* Yes.

*Q.* There is no grievance on that score ?—*A.* That part has gone at present.

*Q.* You could not expect them to give you a new contract until you completed the old contract ?—*A.* That was the arrangement. If the new contract came to hand immediately I had to increase my staff and the outturn. That matter took me eight months with the Quartermaster-General, but it does not take so much with Messrs. Cooper Allen & Co. and others. They get their matter settled then and there because they have got so many facilities.

*Q.* Anyway you have got the contract ?—*A.* Yes.

*Q.* You are quite happy ?—*A.* The industry will pull on.

*Q.* I am not going to ask you about the remarks you have made about the special officer. I do not think it would be fair to do that in the absence of the officer, and I do not think you would like to have that reported and published as your statement. You are at liberty to record that privately and send it on to Government for investigation.—*A.* I have placed these facts before the Commission and why should they not be published in papers for the information of the public ?

*Q.* The officer cannot reply publicly and it is not quite fair.—*A.* He could reply and say that what I say is untrue.

*Q.* I should not like him to say that, because none of us would like to say that of you, and we are perfectly sure that you would not do anything of the kind. You would not like to make an accusation against an officer if he is unable to reply ?—*A.* I have said so not only to you but to the officer and to the head of the department.

*Q.* I am asking whether you would like to have this published because it is not fair to the officer who cannot reply.—*A.* But he could reply. He can do it openly in the paper.

*Q.* He cannot reply, but he has got another course. It would not be fair to the officer.—*A.* My views are there and I do not think they should be withdrawn from publication.

*Q.* You need not withdraw, but is it fair ?—*A.* I think it is fair.

*Q.* I do not want you to do this without being properly warned, because it cannot be regarded as fair to an officer.—*A.* Whoever wants let him come out publicly and we are ready to meet him.

*Q.* We cannot refuse your desire to record this. We can of course refuse to be the medium of publication of accusations brought against any officer personally.—*A.* These are not accusations. These are facts.

*President.*—We cannot necessarily allow this Commission to be a medium for publication of any accusations brought against an officer personally. We could not possibly do that, and consequently the Press (turning to the Press reporters) will regard that as their responsibility if they publish accusations brought against any individual officer. We cannot be the medium of publication for these individual accusations, and it is not quite fair, although we are quite willing for Government to investigate any accusations that are made. We do not think that Mr. Peerbhoy is being unfair purposely. He is quite convinced that he should make this statement, but I do not feel that it is right of him to use the Commission as a medium for publication without giving the officer an opportunity of discussing these things, because there is another side. (*Witness*) I wish to be straight and candid to the Commission in saying that whatever my written evidence is in this pamphlet and my oral evidence shall appear in Press.

*Q.* We cannot object to your publishing it, but what we can object to is using the Commission as a medium for accusing any particular officer. I am not judging the merits. You may be right.—*A.* This will come as my evidence before the Commission and everything will come there.

*Q.* You can do it on your own account.—*A.* It is for the Press to do it or not. If they think it is unfair they would not do.

*Q.* I am giving no opinion about the merits of the case, as it would not be fair to you or to anybody. I am only suggesting to you that it may not be fair to the officer to make this publication without giving him an opportunity of explaining matters to you first. You can understand that we have got no prejudice one side or the other. I do not want to interfere with your business or do any harm to anybody else.—*A.* Very well.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* In answer to question No. 18 you say, "Results of researches made by a Government expert while attached to a private business should not be published without the consent of the proprietors." You say that the Government expert should be kept at the expense of the people, and for how many years should the results not be published?—*A.* Say, at least five years.

*Q.* And then they might be made public?—*A.* Yes.

*Q.* I am not asking you about your answer to question No. 38 because you have explained that. As regards question No. 110 is any encouragement given to handmade industries?—*A.* Shopkeepers.

*Q.* They buy from big factories?—*A.* They make departmentally also and they get from factories also.

*Q.* If they make departmentally, that is also industry.—*A.* That is not industry. If there are large factories and if you do not employ the factories and leave them starving, how could you expect improvements? Shopkeepers do not make improvements. They do not bring any new things to their shops, but it is the factories.

*Q.* But that is also the hand work of the people of the country.—*A.* That is hand work you may say; but I would not take it in the list of industry.

*Q.* For example handlooms, are they not industry? Are they getting private help very largely?—*A.* Yes. At present that is the policy of the Government. They are buying from shopkeepers. They encourage shopkeepers in preference to factories.

*Q.* Are the shopkeepers able to give them cheaper?—*A.* We do not know.

*Q.* Can they produce cheaper than the factory?—*A.* No. Their expenses are such and the style is such that it cannot be cheaper.

*Q.* Then it comes to this that the Government pays more for the hand-workers.—*A.* Again it comes to the same thing that the European industries are patronised, and the same thing with the European shopkeepers.

*Q.* But where do the European shopkeepers manufacture? In this country or outside India?—*A.* In the country.

*Q.* In answer to question No. 5 you say "If an agency, under proper control, be established to buy all available tanned leather at fair prices and export it to England." Do you mean an agency established by Government? Who should conduct this business? Should the agency be under Government?—*A.* No. Either under Government or a sort of company.

*Q.* You want a company to be encouraged by Government or should it be formed by Government?—*A.* By private people.

*Q.* You say "I would suggest to the Commission these things." Tanned leather is exported to England?—*A.* Yes.

*Q.* And they make articles there, or do they re-export it to the continent?—*A.* They re-tan and then use it for manufacturing articles, or send it as rough tanned to the continent for manufacture.

*Q.* Why does not India send directly to the continent?—*A.* That is the thing that requires to be worked out.

*Q.* But India can also send to the continent.—*A.* We do send. We used to send before the war.

*Q.* But you do not want an agency to buy here and export to England and then re-export it from England to the other countries. You are not in favour of such an agency?—*A.* I prefer that agency because the merchants are safe. They know what price they will get before shipment. Sometimes for ordinary tanned leather—I refer to cow hides tanned in India and sold in the English market—they go up to, on average, 24 to 26 pence per lb., and at other times for the very same stuff the offer is only 16 pence per lb.

*Q.* That depends upon the market rate of the world.—*A.* No. That is how the schemes are worked out there by the brokers.

*Q.* But if you can send to the continent—take for instance France. If you get more money in France, why should there be an agency under Government control to get tanned hides and send them to England and not to the continent?—*A.* I do not mean Government control. Any private company or any such arrangement so that the men may know exactly where they have to get money.

*Q.* They can send to the continent if they get higher prices?—*A.* But as a rule, if you take the whole year's average they are always on the loss side.

*Q.* If the agency is here they will be on the profit side?—*A.* They know what price they would sell at. If leather costs me 15 pence today, if I am to send to England, sometimes I get 2 shillings and sometimes I get not even one shilling per lb.

*Q.* You think the brokers there arrange things among themselves? If the stock is bigger they cut down the price?—*A.* Yes. And merchants have to sell because of the other expenses they have to incur.

*Mr. C. E. Low.*—*Q.* You are referring to consignment sales?—*A.* Yes.

*Q.* They are rough tanned hides?—*A.* Yes.

*Q.* There is a very large export of this from Madras?—*A.* Yes.

*Q.* Are they sent on the same system of consignment sales from Madras?—*A.* I do not know. I talk only of Bombay.

*Q.* I may be wrong, but it is my impression that before the war these sales from Madras were financed in Madras, that is to say, the seller of the hides got his money before they left the country.—*A:* They are paid simply in advance against consignments.

*Q.* Not as a final payment?—*A.* No. That is what I want. If merchants get final payment here in Bombay or in India before exporting they know that this is the money they have got for this consignment. It will pay them well and push business.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* That can be done only under some Government agency or control? Private owners can send of their own accord anywhere they like. Can they not?—*A.* Yes, and they do send.

*Q.* You do not want control over the free trade of the other men?—*A.* No.

*Q.* You do not want an agency to control that?—*A.* No. If an agency had been appointed here to buy hides—

*Q.* You do not want any Government restriction or control over that?—*A.* No.

*Mr. C. E. Low.*—*Q.* You contemplate encouraging the export of partially tanned leather and discouraging the export of raw hides by putting a duty on raw hides and organising an agency for the encouragement of the export of partially tanned hides. Do you think that Europe will be able to absorb all the hides that at present go as raw hides if they are turned into partially tanned hides?—*A.* Yes, as at present.

*Q.* When the war is over, when things settle down. Do you think before the war the market for partially tanned hides was sufficient to take up all the hides that go from India now as raw hides if you turn them into partially tanned hides?—*A.* I think so. I think it would be satisfactory.

*Q.* But who are the people who deal with these partially tanned hides in Europe?—*A.* Large manufacturers.

*Q.* Have they not got special organisations and appliances for currying?—*A.* Every factory has got its own special trade. In England tanners are different and curriers also, and so are the manufacturers of different articles. It is not like India. We tan ourselves, curry ourselves and manufacture articles ourselves.

*Q.* These partially tanned hides are dealt with by the tanners or curriers?—*A.* By the tanners because they have to be retanned first.

*Q.* You have got to change the trade in raw hides into a trade in partially tanned hides?—*A.* Yes.

*Q.* How long will it be before Europe can absorb all that? Can it be done at once, or in one year or two?—*A.* It may take a long time.

*Q.* And you wish to put an export duty on the raw hides at once?—*A.* Yes, if you wish to push Indian trade.

*Q.* For a certain number of years the man who has raw hides will lose until Europe absorbs all the rough tanned hides from here?—*A.* I do not think so.

*Q.* I do not see how you can get out of that position. It is necessary under those circumstances to stimulate the rough tanning of hides in this country as much as possible?—*A.* Yes.

*Q.* How long do you think it is likely to take and what practical steps should be taken to that end apart from the export duty?—*A.* It might take a long time—about five years.

*Q.* How is the Government to help?—*A.* By encouraging the local tanners to tan more hides.

*Q.* How ?—*A.* Tanners themselves when they see that there is a duty on the raw hides will buy more and they will send tanned hides there and it will be cheaper.

*Q.* You rely solely on the duty ?—*A.* Yes.

*President.*—*Q.* You can suggest no other action which the Government might take ?—*A.* Nothing to my knowledge.

*Mr. C. E. Low.*—In answer to question No. 34 you say "There should be trade representatives in England and the Colonies for those products which are likely to be sold there." Why do you exclude foreign countries, and what is the reason for confining trade representation to England and the Colonies, because there are certain colonies with which India's trade is small and never likely to be other than small ?—*A.* Yes.

*Q.* Are there not foreign countries in which our trade may be increased; for instance, the United States ?—*A.* Yes. I will change that.

*Q.* You do not attach any particular significance to that omission ? You had no particular reason for omitting foreign countries ?—*A.* No.

*Sir F. H. Stewart.*—*Q.* I do not quite understand your answer to question No. 2 on the second page about the low offers which were made by the English market for rough tanned hides. Is it a question of consignments ?—*A.* Yes.

*Q.* But the exporters here, when they consign, know the firms of repute at home ?—*A.* Yes.

*Q.* They surely do their best for them, or they won't get any consignments ?—*A.* They hand over the whole business to the brokers there. The big houses there do not interfere. I have seen myself. I have been to England twice and I have seen how these consignments are sold there in the market. It is the brokers that deal with the business. They get the buyers there and they open the bales and show them samples and get offers and they place the offers with the houses.

*Q.* It is to the broker's interest that he gets the biggest price, is it not ? He is paid commission.—*A.* What I have said is from my experience. I used to export some years ago. once I got a good price, but the second time the price was cut down so much that I had to stop business myself.

*Q.* If you lose money you stop the business.—*A.* So, I have heard all the other merchants of Bombay say the same thing.

*Q.* Are these auction sales ?—*A.* Yes. Auction means privately. Offers taken from the different merchants.

*Q.* Are there any recognised standards of quality for these rough tanned hides ?—*A.* 1st, 2nd, 3rd, and 4th quality.

*Q.* Who divides them into the different standards ? The exporters ?—*A.* The exporters divide them here themselves, and again they are selected there in the English market. If a merchant sends a bale consisting of 50 hides of the first kind or selection when they go there he finds that out of the 50 only 30 are recognised as of the first selection, and 20 go into the second selection, and they are paid accordingly.

*Q.* Does it not look as if it would be necessary to get more supervision over qualities ?—*A.* No. The supervision is all right. The selection from here is all right, but it is sometimes they get this kind of offer. If the selection is bad, and if they do not know how to make the selection, then the result must always be the same, but it is not the case.

*Q.* Are you tanners as well as manufacturers of boots ?—*A.* Yes, we tan, curry, dress and manufacture.

*Q.* About your suggestion of an agency under proper control to buy all the available tanned leather at a fair price for export, you do not want it to be a Government agency; not started by Government ?—*A.* No.

*Q.* What do you mean by under proper control ?—*A.* A public body, or the large houses here in India who are the media between the exporters and the buyers there, if they make a sort of syndicate.

*Q.* You mean an association ?—*A.* Yes. And if they appoint two or three good men to select the hides before they are exported and pay to the merchant, that would serve the purpose.

*Q.* "All available tanned leather," that means, after satisfying your requirements in your factories ?—*A.* I do not mean my factory, but I mean outsiders. I do not do any export business.

*Q.* This agency would buy all the tanned leather which is not required for manufacturing in your or other factories.—*A.* Yes.

*Q.* Would there be trouble over that ?—*A.* No. Indian manufacturing has not risen to such a stage as to interfere with the English manufacturing.

*Q.* Would it help you if in addition to rough tanning you also went in for tanning thoroughly to try and improve the quality? Are steps being taken to that end?—*A.* No. At present no steps are being taken, although I brought to the notice of the Wheat Commissioner that if the hides were fully tanned it might save trouble.

*Q.* Is there any reason against it? Would it not pay?—*A.* It is to the disadvantage of the English market, because here when the hide is partly tanned it brings lighter weight, but if it is fully tanned, it brings heavier weight, and they do not want hide of a heavier weight to come there and to be paid for.

*President.*—*Q.* You may take it for granted that the Government has not got any prejudice.—*A.* I wish you to ask me details as to how the Cawnpore firms are patronised. I am ready to give them. I can tell you, Sir Thomas, that the Indian firms which can make 200 or 300 tents in a month or a month and a half are given orders for 50 or 75 tents at a time. They complete 50 or 75 tents and they have to wait for orders. In Cawnpore European firms get at a time orders for 1,500 or 2,000 tents. For the sake of Indian industries, if all equally patronised, it will be better for the country and much saving to the Empire.

*Q.* You may take it for granted that the Government are doing their best.—*A.* We hope that the Government would do so even if they have not done before.

---

## WITNESS No. 349.

Mr. E. R. Fern.

MR. E. R. FERN, *Superintendent of Pottery Department, Sir J. J. School of Art, Bombay.*

### WRITTEN EVIDENCE.

### *Financial Aid to Industrial Enterprises.*

Forms of Government assistance.

I have had no experience of the raising of capital for industrial enterprises. I do not think that Government should help new industries with money grants-in-aid, bounties, subsidies or guaranteed dividends. By helping in any of these forms Government would be encouraging irresponsible persons to start concerns which they would not think of doing with their own money. The supply of machinery on the hire-purchase system would be the best form of Government help. The machinery thus given should be open to inspection at any time by a Government official till it has been paid for.

The purchase by Government of locally manufactured goods, provided they are as good and the prices are nearly the same as those of foreign manufacture, would greatly assist a new industry. In the past five years I have personally visited and given advice to three factories manufacturing (1) acid jars, (2) and (3) roofing tiles. Letters received from the factories visited acknowledge the benefits derived from the advice given.

### *Technical Aid to Industries.*

Advice of Government experts.

It would certainly benefit private firms and companies to be allowed the advice or loan of Government experts, but the conditions should be fairly prohibitive to prevent small firms and companies wasting the time of the expert. Native States in particular should be charged very heavily as they are the greatest offenders in this respect.

I think the scale of fees laid down in Government Resolution, Educational Department, No. 3329 of the 21st December 1912, is very moderate. Native States should be made to pay a fee of Rs. 50 per day for every day or part of a day the expert is absent from his office.

Demonstration factories.

Results of researches made by a Government paid expert while attached to a private business should not, in my opinion, be published. I think it would pay Government to establish a demonstration factory for roofing and flooring tiles, electric insulators and architectural terra cotta in either Rajapur or Mandangad (Ratnagiri District) or Marol, Khatalwada Ghore or Vada in the Thana District. This factory can be used for the purpose of teaching on a commercial scale students who wish to launch out in the business as well as to supply the Public Works Department with the tiles, etc., of which they purchase large quantities.

For a demonstration factory to be of any use educationally it must be run on commercial lines on a commercial scale.

Surveys for industrial purpos

A survey of the pottery clay resources of the Bombay Presidency should certainly be supplemented by further surveys; this can be done by the Geological Department with the help of a man who understands pottery clays.

### *Assistance in Marketing Products.*

Exhibitions.

If exhibitions are to be held it should be with the object of bringing the sellers and buyers into contact. Government should exhibit at these exhibitions imported articles used by the different departments in order to show the manufacturer the standard up to which they will have to bring their goods before Government can accept them from local manufacturers.

### *Training of Labour and Supervision.*

I have found no difficulty in training labour, but from personal experience I have found that those students having Primary as well as High School education make the best workmen.

Study abroad.

With regard to giving assistance to supervisors, managers and technical experts of private firms to study conditions and methods in other countries, I should most certainly say that the monetary assistance should come from the firms, and not from the Government. The Government may try to get them permission to visit factories abroad. Government should encourage their experts to study conditions and methods in other countries by granting the usual travelling allowance according to Civil Service Regulations.

The experts must keep in touch with the improvements in methods and machinery which are taking place in foreign countries. It is not enough to read of the improvements in the journals of their respective societies. They must actually see them.

### *Other forms of Government Action.*

Certificates of quality.

In the pottery industry there should be a system of Government certificates of quality for building bricks, fire bricks, roofing tiles, flooring tiles, glazed ware for sanitary purposes, drain pipes and electrical insulators which should be compulsory. Certificates for other products such as crockery and ornamental ware may be voluntary.

### ORAL EVIDENCE, 29TH NOVEMBER 1917.

*President.*—*Q.* How long have you been in Bombay ?—*A.* Nearly 10 years.

*Q.* Have you been in the Art School the whole time ?—*A.* Yes.

*Q.* You published recently a short summary of your researches in Indian clays generally ?—*A.* Indian clays generally.

*Q.* Is that being published in full detail shortly ?—*A.* Yes.

*Q.* Is the monograph now being prepared ?—*A.* It has just been typed, and will be before Government in a day or two.

*Mr. C. E. Low.*—*Q.* Is it proposed to publish that monograph ?—*A.* We have asked Government's permission.

*Q.* Have you had any inquiries from private firms regarding the location of suitable types of clays ?—*A.* Yes, several firms.

*Q.* Are any of them likely to lead to business, do you think ?—*A.* I think so.

*Q.* What classes of pottery do they seem mostly to have in mind ?—*A.* The majority of them have roofing tiles at present in mind, and very many of them want acid jars and pickle jars. There is a great sale for that class of ware.

*Q.* Have you been doing anything in connection with the making of pots for glass furnaces.—*A.* I made a few experiments.

*Q.* Have you had any success ?—*A.* A fair amount of success.

*Q.* Are any of your pots being used by glass-making firms ?—*A.* No.

*Q.* Perhaps you don't attempt to make them on a commercial scale ?—*A.* We do not attempt to make anything on a commercial scale.

*Q.* Are any firms obtaining instructions from you as to how to make these on a commercial scale ?—*A.* Yes.

*Q.* Are there any cases of representatives of glass works or pottery firms working with you to gain knowledge ?—*A.* Yes. One from the Kirloskar Glass Works who is studying general earthenware and fire clay goods. There is also one from the Mysore Government. He is studying pottery with the object of working for the Mysore Government ultimately.

*Q.* Are there no existing factories on this side of India for roofing or flooring tiles in the Presidency ?—*A.* In the Presidency there are several for roofing tiles, but not any for flooring tiles ; there are one or two at Ahmedabad and one in Kathiawar.

*Q.* But none in the south of the Presidency ?—*A.* Yes, there are two in the Belgaum District.

*Q.* Why do you think it desirable that Government should start demonstration factories when there are so many existing ones ?—*A.* Because they are all working on a wrong basis.

*Q.* Their principles are not good ?—*A.* Their principles are all wrong.

*Q.* And the class of articles they make is very inferior ?—*A.* Yes.

*Q.* Do those tiles compete with imported Mangalore tiles from the West coast ?—*A.* Yes.

*Q.* And the Mangalore tiles fetch a higher price ?—*A.* Yes, the Basel tiles especially fetch a higher price than all the other tiles.

*Q.* By "electrical insulators" I suppose you mean cleats and things of that sort ?—*A.* Yes.

*Q.* Are they not made on this side of India at all ?—*A.* I do not believe they are made anywhere in India.

*Q.* I think they are by the Bengal Pottery Co., and also Burn and Co. You don't know what they are doing about it on that side of India ?—*A.* No.

*Q.* You turn out experimentally articles of that type in the School of Art ?—*A.* Yes.

*Q.* Have you had any inquiries from local people about being put in the way of making them ?—*A.* Yes.

*Q.* Are there suitable clays ?—*A.* Round Bombay there are suitable clays.

*Q.* I don't quite understand what you say under the head of "Training of Labour and Supervision". You say, "from personal experience I have found that those students having Primary as well as High School education make the best workmen". Do you mean that men with primary education make as good workmen as high school men ?—*A.* No, but that high school men make better workmen than primary.

*Q.* You propose a system of Government certificates of quality for building bricks, etc., which should be compulsory. Where are you going to draw the line ? Has the man who burns a lot of bricks at the end of a village to have a Government certificate, and if so, who is going to supply the certificate ?—*A.* Bricks as a rule ought to have a certain standard of size, tensile strength, and so on.

*Q.* But when they are being used to build a cultivator's house in a village in the middle, say, of the Thana district ?—*A.* I mean in the case of any public buildings or large houses which come under Municipal Acts ; not for little villages, but for large cities.

*Q.* That is about a 90 per cent. limitation.

*Hon'ble Sir R. N. Mookerjee.*—*Q.* If you burn bricks in one kiln, say 10,000, there will be 30 different kinds of tensile strength among those bricks.—*A.* Not necessarily.

*Q.* Have you had any experience ; have you actually tested any ?—*A.* I believe Turner Morrison & Co. have just started a huge concern.

*Mr. G. A. Thomas.*—*Q.* What would be the form of the Government certificate of quality ? What would it say ?—*A.* That they are up to standard quality.

*Q.* How often would you give a certificate ? For every firing ?—*A.* For every consignment of bricks that left the factory.

*Q.* Does that mean every firing ?—*A.* Every firing would come in.

*Q.* Who would give the certificate ?—*A.* For instance, when the Public Works Department purchase bricks, they test the bricks. If they pass the Public Works Department test they are accepted by the Public Works Department.

*Q.* If they are satisfied they buy them ; they don't want to give a certificate. The danger is this : if certain bricks are bought by the Public Works Department, and they give a certificate, that does not certify that the next lot of bricks supplied to a private person is of the same quality ?—*A.* They have no time to change the mixtures. If they get bricks out of a certain clay, they cannot possibly change that composition again, so practically it will always come out the same quality.

*Q.* If the Public Works Department certifies once that the produce of one factory was up to standard quality, every subsequent output would be regarded as of the same quality ?—*A.* Yes.

*Q.* Who would actually certify ; would that be done by a Government expert ?—*A.* Yes, I think so.

*Q.* Would that be done on the spot ?—*A.* It need not.

*Q.* What guarantee would there be that the actual supply was really produced at this particular factory ?—*A.* In that case the expert should go there and make the test.

*Q.* He would have to be a sort of travelling expert ?—*A.* Yes.

*Sir F. H. Stewart.*—*Q.* Why do you recommend these Government certificates ?—*A.* To improve the quality of the material now being made.

*Q.* Leaving aside the question of bricks, would they be acceptable to the trade generally ?—*A.* They certainly would be.

## WITNESS No. 350.

### MR. PERCY ANSTEY, B.Sc., *Principal, the Sydenham College of Commerce and Economics, Bombay.*

### WRITTEN EVIDENCE.

### *Memorandum on "The utility of Colleges of Commerce."*

lerical training

1. The first thing is to be clear what object a particular College of Commerce is to serve. Is it intended mainly to turn out well-trained clerks? Then an institution of the type of Pitman's School in London will be the desideratum: an institution, that is to say, where shorthand, typing, book-keeping, business correspondence, office methods, commercial arithmetic, elementary economics and banking, modern languages, etc., are very efficiently taught, in detached courses, at hours largely arranged to suit the convenience of those already in business: each student selecting the subjects he requires for his individual purpose.

n Bombay.

2. The utility of such institutions—which, however, are "schools" rather than "colleges" of commerce—is so universally acknowledged that it requires no discussion. What have we of a similar kind in Bombay? There are a vast number of small private concerns, called by various grandiloquent names, at which clerical training of some kind—chiefly book-keeping—is obtainable; and there are also two larger institutions, namely Davar's College and the Jeejibhoy Parsi Charitable Institution, which successfully prepare young men for clerical posts, and coach them for examinations like those of the London Chamber of Commerce, the National Union of Teachers, the Institute of Bankers, and the various Societies of Accountants. But on the whole the opportunities in Bombay of acquiring a sound commercial training are altogether inadequate: with the result that the great mass of clerks in ordinary business firms cannot write correct, clear English, are incapable of drafting a business letter in a satisfactory form, have no idea of time-saving devices, type slowly and in anything but a neat manner, are seldom able to turn shorthand to any practical account, and in general reach only a low level of efficiency. There is therefore any amount of scope for improving elementary commercial training in office work.

ducation of a University type in ommerce.

3. Education in "Commerce" may, however, mean something different. There have within recent years sprung up in Europe and America a number of institutions the function of which is to turn out, not clerks, but young men fitted to rise, under suitable conditions, to positions of responsibility as managers and organizers. The idea in this case is to give a liberal education of a University type, on the assumption—which experience has amply confirmed—that such an education, by enlarging the intellectual and moral outlook, ultimately pays in the higher spheres of business no less than it admittedly does in professional or official pursuits. The courses of study, however, instead of consisting of classical languages, philosophy, literature, or physical science, comprise subjects like economic history and theory, national administration, public finance, statistics, currency, banking, commercial geography, mercantile law, accounting and auditing. Such is the aim of the great and brilliant German Colleges of Commerce (Handelshochschulen, as distinguished from Handelsschulen, *i.e.*, Commercial Schools); of the Faculties of Commerce at several English Universities; of the Graduate School of Business Administration at Harvard; and, to a large extent, of the London School of Economics. Most of these institutions were started in the face of considerable doubt and opposition on grounds which I shall deal with presently; but when wisely planned and managed, they have long since proved triumphantly successful. In Germany and America more particularly, the only question with reference to them before the war was: could they be expanded yet further?

ydenham College signed to turn out en with the ghest potential alifications.

4. The Sydenham College of Commerce and Economics was founded on this model. It was intended primarily—at first perhaps solely—to prepare undergraduates, according to a prescribed syllabus, for the degree of a Bachelor of Commerce, which was instituted by the University of Bombay in 1912. The aim was to divert the Indian College student from his excessive pre-occupation with Law or Arts, and to turn his thoughts instead to the methodical study of business organization, regarded both from the private and the public point of view. In this way, it was conceived, a new type of highly-educated young Indian would come to the front, with incontestable claims to be tried in the superior posts that have hitherto been confined to Europeans, on the plea that the latter alone possessed the requisite habits of thought and of work—in short, sufficient general business capacity.

bjections.

5. The legitimacy of this aim will scarcely in public be contested. Certain objections, however, are occasionally raised, here in India, as they have in the past been raised elsewhere. The logic of facts has disproved them in Europe and the United States. Still, it is enlightening to examine the chief criticisms usually brought forward.

6. It is often urged by businessmen—especially by those of the "older school"—that "you cannot teach business at a college, no amount of theory being a substitute for practice." The answer to this is that it is not for a moment intended to be a substitute. The lectures and classes do not attempt to replace the concrete experience that can be gained only in business and in life itself. It is a question, not of supplanting, but of supplementing, by a wider survey of economic organization, the necessarily limited knowledge that is acquired in one particular line.

Generalized kno ledge meant to supplement, not t replace, actua experience.

7. If this distinction between what a College of Commerce can do and what it cannot do is carefully borne in mind, another objection is disposed of simultaneously. One is frequently told that courses on foreign trade, the history of economic development, public finance, and similar topics do not afford "practical" training. But practical training, properly speaking, can be acquired only in actual practice: unless it is a question merely of mastering those preparatory qualifications which are suitably taught in commercial schools, but are neither of a University standard, nor really constitute the study of *Commerce* in a higher and more comprehensive sense.

To attempt the latter, out of anxiety to be "practical" is futile.

8. A few months ago I got the Bombay University to admit two new subjects into the curriculum for the B.Com. degree. One was "Business Methods"—including commercial correspondence, the principles of "scientific management," the psychology of advertising, and in general the study of industrial organization and control from the businessman's point of view. The other was "The organization of the Indian Cotton Trade." Both syllabuses were based on courses inaugurated at this College, and both were clearly designed to serve thoroughly "practical" purposes. The first aimed, not indeed at the impossible task of bestowing proficiency in business management directly, but rather at accustoming students, by the analysis of different methods of work and supervision, to give their attention in detail to what can be achieved in the way of augmenting efficiency, and was thus intended to beget in them the habit of looking out for and recognizing the importance of these things.

"Business Methods" and "The organiz tion of the cotton trade."

The second course—an optional subject for the benefit of those students who propose to enter the cotton trade or are otherwise interested in it—was similarly planned on rigorously concrete "practical" lines.

Nevertheless, I ventured to state when introducing these new subjects in the Senate that it would be a mistake to regard either course as "practical" in the sense in which that term is employed in speaking of courses by which students of medicine or law are prepared for the immediate practice of their vocation and enabled to earn respectable sums at the very outset.

Sydenham College not a vocational institution.

I then said: "*No* course for the B.Com. degree is vocational in that sense, nor is Sydenham College in that sense a vocational college. Whatever the Bachelors of Commerce may have studied at college, the businessmen to whom they go for employment will always expect them to start at the bottom on a nominal salary, until they have gained experience in the particular concern they elect to join.

This applies to the cotton course, as it applies to all the others—with the very doubtful and certainly only partial exception of accounting: for even there three years' apprenticeship is demanded.

Are these courses then without any *practical* value whatever? Certainly not.

The practical benefit of attending them will indubitably follow, as has been proved to the hilt elsewhere: for the young businessman will be fitted for more responsible and remunerative posts than he could ever have aspired to if his education had remained that of a petty clerk. But it will follow not at the outset of his career when he will have to take his place on the lower rungs of the ladder, like the rest, but later and rather indirectly. It will follow, that is to say, when opportunities of advancement offer themselves which he can now seize, because he has insensibly become a man of a superior stamp. Without a systematic training, on the other hand, in the subjects which nowadays make up the body of economic science, an ambitious young man is only too likely—unless he happens to be one of the few who are adequately self-taught—to be found wanting in the wide information, the capacity for clear thinking, and the trained judgment which are essential in the management of modern business: and which, being by no means superabundant, have their corresponding value in hard cash. To pretend that these courses can lead *directly* to responsible positions and substantial incomes merely excites the ridicule and hostility of businessmen. The students, on their side, are encouraged, if these courses are compared with those in law and medicine, to entertain extravagant expectations which are bound to be bitterly disappointed; and at the same time they create positive prejudice against themselves by what seems to other people their preposterous arrogance."

The real "practical utility of a colleg education in commerce.

Students must realize that their market-value will at first be very slight,

9. By anticipation I have, in this quoted passage, dealt with a third objection to an education of a University type in "Commerce:" namely that the young men who have taken it are puffed with conceit, and consider themselves entitled, on the strength of their academic degree alone, to demand absurdly high positions and pay. That they are very apt to do so is unfortunately true. But as I have just suggested, their illusions are obviously in part fostered by the fallacious conception of the function of a College of Commerce which is too often preached and printed. Meanwhile no opportunity should be lost, in the course of their studies, to repress their self-complacency; and if this does not suffice, experience may presumably be trusted to make them wiser.

though higher than that of Arts graduates. They should consider solely ultimate prospects.

10. A Bachelor of Commerce may nevertheless, even at the start of his career, be expected to command better pay than an arts graduate. It is instructive to note what openings were actually found last year for the first batch of students who took the B.Com. degree. Out of 26 successful candidates 24 secured good positions. Concerning 2 I have no information. Of the 24, seven at least began on salaries of Rs. 100. The remainder obtained anything between that sum and Rs. 50; and in many cases the less well-paid posts were in leading firms, able to offer indefinite advancement to men who prove their capacity, and were thus in reality more desirable than the better paid ones. I invariably tell the students not to mind how low an initial salary is, but to consider solely the facilities for rising ultimately.

A second batch of young men from this College have just taken their degree, and I anticipate no difficulty about their finding good employment, or doing well for themselves if they set up "on their own."

Necessity of limiting the number of degree students,

11. At the same time it must be admitted that opportunities of rising are, at this stage of Indian industrial development, not unlimited. It follows that there is no scope in any one year for more than a comparatively small number of young men with the special training and the consequent ambitions of graduates in commerce. As it happens, the degree examination, far from being easy—as has popularly been supposed—is an exceptionally keen test of mental calibre. Not 25 per cent. of those who enter the College emerge successfully. But manifestly such a large proportion of failures implies much misdirected effort. Many of the students who originally joined had no genuine aptitude for business at all, let alone any connexions or capital to assist them. Little by little a more promising class of young men have been attracted from every part of India; and the process of selecting the most fit has been further assisted by a restriction of admittances (from 100 to 70) and by an entrance test designed to ascertain each applicant's general capacity.

while providing courses in Commerce for those already engaged in business,

12. Yet the number of *degree* students is probably still excessive. This in no way implies that the College as such should circumscribe its work. On the contrary, it ought, I strongly hold, to enlarge its functions, by providing opportunities of commercial study for all persons desirous of profiting by them, irrespective of their academic standing and irrespective of whether they are already in employment or not. Anyone who is practically or theoretically interested in some particular aspect of business or economic inquiry ought to be able to attend a course—or odd lectures—at the College, to suit his special need. This is what the German Colleges of Commerce lay themselves out to do, and so does the London School of Economics, where the degree students are a small minority. If Sydenham College is to be of general utility, it ought, I submit, to offer the same facilities.

by means of evening lectures and classes.

13. Towards this end I have, with the approval of our Advisory Board, always advocated the admission of non-degree students and the holding of evening classes at low fees. Evening lectures in Accounting have been delivered for the last eighteen months; and a beginning was made last term with evening courses on Banking and on Statistics. They were encouragingly attended, and will be continued and followed by others on Commercial Geography, Transport, Elementary Economics, etc. I have also frequently organized special addresses by distinguished outsiders on current topics: Professor Todd's short course last year on "The present situation as regards cotton" being a good example.

Elementary commercial training might also be given.

14. The College might very well go yet further and provide teaching in those preparatory studies connected with business routine which, while they cannot form part of a degree course, are yet of the greatest practical utility, if not indispensable. In Europe it is more convenient—chiefly on account of the size of the Colleges or Schools concerned—to give the higher type of education in Commerce at one kind of institution and the lower at another. But of course no hard and fast line can be drawn; the curricula to some extent overlap; and at some institutions provision is made alike for elementary and advanced studies. In this country it would be eminently desirable, in my opinion, to take a comprehensive view and systematically to co-ordinate in one great institution *all* teaching that aims at promoting commercial and economic efficiency. The first advantage would be a levelling up, at a central Government College, of what may be called the elementary kind of commercial training, which, as I observed above, is at present unsatisfactorily provided for. The second advantage would be that the entire

A comprehensive view of what Government could with advantage do to promote commercial education of every kind.

work of such a College, if closely related and interdependent studies were no longer divorced from one another, would become one organic whole. Students and staff alike are all the better for coming into close touch with those who approach the problems of organization from some other angle than their own. And thirdly there would be an economy of effort and expenditure. This last point, I venture to point out incidentally, should also be borne in mind when considering the advisability of multiplying Colleges of Commerce. If the latter are to be really efficient, they require commodious accommodation in the business quarter of a great city, where sites are exceedingly valuable; they require highly qualified teachers, who, being specialists—sometimes in subjects that have only been taken up recently—command high pay; and they require, as an essential adjunct, a first-class reference library, containing *all* publications dealing with commerce and economics, whether in the shape of ordinary books, of pamphlets, of reports, or of periodicals. All this means a considerable outlay, which can be incurred only in the chief industrial centres—for the present only in one or two Indian cities. To spend money on imperfectly equipped colleges in smaller places would, in my opinion, be mere short-sightedness. Of course, I am now thinking mainly of Colleges of Commerce of the more ambitious sort.

in one well-equipped institution.

15. Commercial *Schools* may justifiably be multiplied, but not *Colleges* in the proper sense: though—as I endeavoured to show just now—these, if they *are* established in a commercial centre, should *include* the commercial school. And just as the study of commerce may shade into office-training at one extreme, it may well merge with investigations into the higher problems of social economics at the other. I would even say "it must." For a college that does not provide facilities for original research falls short manifoldly. It holds out no ultimate chance of winning distinction to the more brilliant men. It is bound to fail in making the whole body of students feel that the aim of the teaching they receive is not to pack them with information so much as to render them, if occasion should demand, *capable* of some independent piece of thought or work. And finally it ignores a public obligation; for in these days of correlated special studies, inquiries undertaken by individuals unaided are becoming more and more difficult; and a college with the training afforded by its seminars, with the conveniences of its library, and above all with its staff of experts—themselves men engaged in perpetual research—ready continually to advise and direct the investigator, is the natural centre for this work of *advancing* knowledge, no less than for imparting it.

Need of advan knowledge by research,

16. In conclusion I desire to emphasize with all possible force the necessity for a College of Commerce, conceived as I have conceived it, to get into and keep in the closest contact with the actual world of affairs. The students should constantly, by means of visits of observation, see what they can of the mechanism of industry for themselves. Leading merchants should be got to take a personal active interest in the daily life and development of the institution. And above all, the principal and staff should have and take every opportunity to meet businessmen in private, so as to obtain their knowledge of what is passing at first hand. In this way the teaching will in earnest become *practical*: practical, that is to say in the sole sense that is applicable to college courses, namely, that it is integrally based on experience, accumulated and generalized, and in that it continually keeps in touch with current developments, so as to remain genuinely "alive."

and of keepin genuinely " a

17. I am not certain how far what I have written covers the topic I was asked to discuss. To *prove* the utility of Colleges of Commerce would involve a detailed account of what they have done to deepen and widen the understanding of industrial and commercial problems—problems very largely of the type that the Indian Industrial Commission is examining at this very moment—in the countries where they have been established sufficiently long to make it possible to judge. To give such an account in a memorandum is hardly practicable. I have therefore confined myself to an analysis of the principles which I consider should be applied, if an Indian College of Commerce is to realize its possibilities.

The utility o Colleges of C merce provoc their work elsewhere. The problem to organize o right lines.

18. On any further points I shall be glad to answer any questions the Commission may care to put to me.

Additional re for Governm providing cle training also.

*Note 1 on paragraph 14.*—I have argued that Government, having provided higher education in commerce by undertaking to prepare students for the University degree, should, the conditions here being what they are, provide—and improve—every kind of commercial teaching. In this connexion it may be noted: (*a*) that Government already hold one of the principal commercial examinations, *viz.*, that of the London Chamber of Commerce; (*b*) that some of the chief promoters of commercial teaching have expressed the desire that these examinations should be held by Government under the auspices of Sydenham College; (*c*) that if there is a case for Government's control of an examination, there is a still stronger case for asking Government to provide the education leading up to it. As a matter of fact, when Government two years ago instituted the examination of the Accountancy Diploma Board, which in future will be a qualification for the granting of an auditor's certificate, they simultaneously recognized the need of guaranteeing the provision of adequate teaching and ther[illegible] sanctioned the holding of special evening classes at Sydenham College for this purpose.

Degree students should come to Sydenham College after matriculating.

*Note 2.*—One other point deserves mention in reference to the expansion of the work undertaken by Sydenham College. It has to do with the degree course itself. At present the latter extends over three years. One year students are compelled by the University to spend at an Arts College before they begin their courses here. It would be much better if they spent that year too at Sydenham College, on some useful preparatory studies relating to their future work, instead of on totally unrelated subjects like Persian, Physical Science, or English Literature taught with no eye to practical requirements. The plea that the Arts College is indispensable for conferring general culture I regard as nonsense.

## *Supplementary evidence of Mr. Percy Anstey, Principal, Sydenham College of Commerce and Economics.*

### SECOND MEMORANDUM ON THE ORGANIZATION OF COMMERCIAL EDUCATION IN INDIA.

At the request of the Industrial Commission I have quite recently submitted a memorandum on the utility of Colleges of Commerce, with special reference to India. It seems to me, however, that the kind of information the Commission are in search of will be seriously incomplete, unless I also deal more specifically with the experiment which is already being made by Government in higher commercial education at Sydenham College.

The latter was founded four years ago amidst great expectations. It is still the only College of Commerce of a University type in India; has constantly loomed large in public discussions; and as it succeeds or fails, is bound profoundly to influence future attempts in the same direction.

I therefore venture to place before the Commission, as briefly as possible, the salient facts as to how this venture is shaping.

What has been accomplished.

In some respects it may be claimed that much that is noteworthy has been achieved. The curriculum for the Bachelor of Commerce degree has been improved by systematization and by the inclusion of business methods, administration, public finance, and statistics among the compulsory subjects, and of the organization of the cotton trade and advanced Indian economics among the optional ones. The teaching has been made more real, by the introduction, as a sequel to nearly all the lectures, of tutorial classes for questions, discussion and criticism of written work; by accustoming the advanced students, through seminar work, to methods of independent investigation; by frequent addresses on living topics of the day; by visits of observation to places of industrial and commercial interest; and in general by all manner of devices that aim, instead of cramming points for an examination, at evoking the capacity to inquire, think, and judge. The award of a Diploma in Accountancy by a Board of Sydenham College has furnished an acknowledged basis for the grant by Government of Auditors' Certificates. To prepare for the diploma, evening courses have been started. They are being followed by similar courses in other subjects, for those engaged during the day; and the College is ready vigorously to develop this side of its functions. The library already contains a complete set of publications of every sort on Commerce and Economics than can be found elsewhere, and promises in time to become, within its own sphere, an institution of first-rate importance. Members of the staff have to their credit a considerable amount of published work--largely the printed form of their College courses—which has been highly commended in competent quarters. The Advisory Board has admirably helped to keep the College in harmony with practical requirements. And the support of the business community in general has been enlisted to a gratifying extent.

—— nevertheless unsatisfactory.

So far so good. It must nevertheless be said with plain emphasis that the progress of the College has been nothing like what it might and ought to have been. Great opportunities have been lost; and unless certain radical changes are effected, they will continue to be lost, until the College and the cause itself of higher commercial education are jointly discredited.

Fundamental needs.

The two most obviously fundamental needs of the College are a building of its own and a properly qualified regular teaching staff.

Building

But in spite of the fact that nearly two lacs were collected for a building, the College is still housed in makeshift premises above a shop. Few people know where it is situated; many not even that it exists. The students, in the depressing atmosphere of a converted flat, feel that theirs is scarcely a " pucca " college at all. Such teaching as is at present possible is given for want of space under grave disadvantages; and as for projects of expanding the work of the College, they remain of course idle talk.

and staff.

The staff has not yet been placed on a permanent basis; and several among the few men in India who are qualified as specialists to undertake the teaching required have been lost: with the result that there has been continual shifting and disorganization.

The war.

It may be said that the long delay that has occurred in satisfying these two fundamental needs is attributable to the war, which has disinclined Government to spend any money either on contributing their share to the existing building fund or on salaries adequate to secure specialists in permanency.

No adequate explanation of arrested development.

But—passing incidentally over the fact that in England a far greater financial stringency has not prevented Government from spending more than ever on education, and that commercial education in particular, if once it is admitted to be an element in the economic advance of India, cannot afford to wait, and has indeed been made urgent by altered conditions due to this very war—I believe that, if the war were to end to-morrow, the handicaps that vitally impair the efficiency of Sydenham College would not be removed.

As a matter of fact the root of the trouble lies deeper.

Inelasticity and aloofness of Government control.

Sydenham College, unlike any College of Commerce at home, is run directly by Government. Conditions in India being what they are, this is inevitable. It tends, however, to make the management and control of the College inflexible. In the case of Arts Colleges, where the work goes on year in year out much on the same lines, and the requirements of which are well understood, this matters little enough. But a College of Commerce, if it is not to be simply yet another Arts College, distinguished merely by its curriculum being devoted mainly to abstract economics, with a few so-called professional courses like Accounting thrown in, must be in intimate touch with the actual world of affairs, and must respond readily to every new demand. In its organization the *inelasticity* and the *aloofness* of Government control must therefore be modified. I have insisted on this again and again in official reports from the moment I took charge, and, as time goes on, increasing experience convinces me that, unless some remedy is found, it is hopeless to look for genuinely satisfactory results.

Positive proposals.

My contention can be proved by an abundance of facts and illustrations, if the Commission desire to examine me. In this memorandum, which I undertook should not be unduly long, I confine myself to certain positive proposals.

Control should be transferred to a department acquainted with and interested in commercial trainin and knowledge.

First, the *ultimate* control of the College should be transferred from the Educational Department, which in the nature of things is neither well-informed about commercial needs nor interested in them, to some kind of Department of Industry and Commerce, which makes them its chief concern. Were this the present arrangement, it would not, I take it, have been necessary to convince Government that a College of Commerce must obviously be situated, not in the country or in some suburb, but in proximity to the business quarter; and I believe that it would have been possible definitely to secure a suitable site and perhaps even to get sanction for a start being made with the building. Similarly with regard to the question of the staff.

Necessity for frequent interchang of views between those immediately and those ultimatel responsible for organization.

Secondly, the Principal, who is *immediately* responsible for the organization of the College, and was sent out expressly in order to be the Government's adviser in this matter, should have the opportunity of consultation and of an interchange of views with those who have the *ultimate* control. At present such opportunities are exceedingly rare. The Director of Public Instruction lives at Poona, and is in any case too much taken up with his ordinary educational work to be able to give the affairs of a College of Commerce a disproportionate amount of his time and attention. Except for their staying in Bombay for part of the year, almost the same applies to the Educational Secretary and the Honourable Member. Nearly everything has therefore to be settled by the cumbersome routine method of formulating proposals in official documents and then awaiting Government's decision, without any chance of meeting objections, clearing up obscurities, and *discussing* things.

Need of more elasti management.

Thirdly, some elasticity should be allowed, after making the usual fixed provision for normal expenditure, in regard to minor outlays on requirements that cannot be foreseen long ahead. Under the existing system, if a chance offers itself of engaging, say, a specialist on cotton—like Professor Todd—to give a short series of lectures, or if some circular, pamphlet, or report needs to be printed that does not come under prescribed rules, the Principal has to beg for the money from private individuals. The Advisory Board could, as they have themselves suggested, examine and vouch for the proper employment of a grant to cover such disbursements. It amounts to a plea that a College of Commerce in this, as in other respects, ought itself to be run on business lines.

The above are merely haphazard illustrations. But the question of greater elasticity of management and of more appropriate control affects the functioning of the College throughout, in little issues and in great.

I repeat that, without radical reform of the kind indicated, the College cannot possibly, in my opinion, fulfil its purpose.

## ORAL EVIDENCE, 29TH NOVEMBER 1917.

*Mr. G. A. Thomas.*—*Q.* You say that on account of war Government were disinclined to spend money either on contributing their share to the existing building fund or on salaries adequate to secure specialists in permanency ?—*A.* I imagine this is the case.

*Q.* Is it a fact so far as you know that Government have been disinclined to give any money to your college ?—*A.* Certainly, I have been told repeatedly that money cannot be had.

*Q.* Would you mind quoting chapter and verse to this statement ?—*A.* Well, I have one document pointing out that on account of financial stringency no new expenditure of any kind is to be incurred.

*Q.* That is a general statement, has it not been withdrawn ?—*A.* That is a general statement, but in any case the words 'it may be said that the long delay is attributable to the war' only means 'people may argue thus.'

*Q.* What is the Government's share for your existing building fund ? Did Government promise any particular share at that time ?—*A.* Not that I am aware of. I understand that the position is that the committee of the Lord Sydenham memorial fund handed over the building fund of the College to Government on the understanding that Government would complete the sum required for erecting the building.

*Q.* Have Government so far as you are aware issued any resolution that they are not going to contribute ?—*A.* No.

*Q.* Am I correct in saying that over a year ago when you were asked by the Education Department to submit definite proposals for having a permanent staff, you asked that you should be allowed to reconsider the matter in the following year and to submit proposals some time in 1917 ?—*A.* I have always pointed out that there is no use making proposals until Government are pleased to accept certain general principles which would govern these appointments. That is quite obvious. But there is no indication that Government accept the salaries that would enable a permanent arrangement to be satisfactory.

*Q.* I do not press the matter. You said that you would rather wait for a year to have further experience as to the staff required before making suggestions as to the permanent staff ?—*A.* I did require some time to consider, but my suggestions were made long ago now; they have been on the books for a long time.

*President.*—*Q.* It is not a question of delay ?—*A.* I do not think so.

*Q.* It is the question of accepting certain principles. Government should either accept or reject certain principles. Certain men could have been obtained on lower rates some time ago, but as you could not fix the permanent pay they went off somewhere else ?—*A.* Yes.

*Sir F. H. Stewart.*—*Q.* What is the practice in regard to vacations in your College ?—*A.* 10th March to the 20th June, and from 10th October to the 10th November, 4 months and 10 days.

*Q.* And Christmas and other holidays ?—*A.* Yes. They are the same vacations as those of the other Arts Colleges here. The system here is that the University determines these things.

*Q.* Is there no vacation work ?—*A.* There is no definite vacation work. I always advise the pupils not to lose the opportunity of taking advantage of acquiring office experience during vacations. There is nothing further than that.

*Q.* Do you grant a certificate to the students from the College after they have passed the examinations ?—*A.* They get a degree and in addition to that, they all desire to have personal certificates from the Principal, because that is found to be the most effectual thing to secure them a situation.

*Q.* When they pass the examination they get the degree as a matter of course ?—*A.* That is merely a formality.

*Q.* Is there any separate diploma for Commerce ?—*A.* There is no separate diploma.

*President.*—*Q.* Not for a part time course ?—*A.* There is no part time course.

*Sir F. H. Stewart.*—*Q.* At the end of your note you say that the University insists upon a student attending at an Arts College for one year before he goes to Sydenham College ?—*A.* I think that is from our point of view wasted.

*Q.* Do you find the students have sufficient knowledge of English ?—*A.* Very poor knowledge. Many of the students are, strictly speaking, not fitted to attend courses that are given in English at all. They understand only part of the lectures, and we frequently find great difficulty in training them. Their style of writing is very bad and that is why I have instructed the staff to try to devote a considerable part of the first year to improving their English from the practical point of view.

*Q.* Is there anything else of this kind in India, a College of Commerce of the University type ?—*A.* This is the first of its kind.

*Q.* What about granting a diploma for accountancy, can you explain that in more detail than is contained in your memorandum ?—*A.* Well, when the founding of the Sydenham College was contemplated the idea arose that it would be a good thing if Government were to grant a diploma in accountancy which would serve as a basis for granting auditor's certificates under the Companies Act and two other Acts, and a sub-committee of the Advisory Board of the Sydenham College was formed into an accountancy diploma board, which was charged with the duty first of drawing up a scheme to be submitted to the Government of India, and secondly with the duty of examining students. This board has now been in existence some time and the first examination is to be held next March. There has not been an examination till now, the object is to keep up a certain standard for those who are allowed by Government to practise as auditors.

*Q.* You allow those who are really practising as accountants certain concessions ?—*A.* Yes.

*Q.* The College course is one of two years, after that they have to be apprenticed for some time ?—*A.* The College course is two years, and then they have to put in a three years' apprenticeship. On the other hand students of the College degree course who have taken accounting and auditing as their special subject are required to put in only two years' apprenticeship afterwards. There are two classes, those who take accounting as a special subject in the degree course, and those who take no degree course but attend the diploma course.

*Q.* You are desirous that the control of the College should be transferred from the Education Department to the Department of Industries ?—*A.* I should think on the whole myself that that would be a good thing.

*Q.* You wish to maintain an advisory board ?—*A.* Yes, it is most valuable, but the main thing in my opinion is, as I say in my second point in the second memorandum, the necessity of more frequent consultation between those immediately responsible and those who are ultimately responsible ; without that I think the whole thing will be hopeless.

*Q.* Do you think too much importance is attached for preparation for the degree ?—*A.* Well, the College courses are instituted with direct reference to the degree, they serve that purpose. I think that these courses should be suitable for the degree examination.

*Q.* Are they suitable for men who don't take up a business career ?—*A.* I think that in many respects they are. People already in business who want to widen their knowledge in some special subjects may also come to the College.

*Q.* In evening classes ?—*A.* Yes, chiefly.

*Q.* In special subjects only ? or in anything that they like ?—*A.* Yes, in special subjects at their choice.

*Q.* Do you not think that it would perhaps be better to give much more practical training in the majority of cases than that a selected few should go through special instruction in some of the subjects that you have got such as Economic Theory, National Administration, Public Finance, etc. ?—*A.* I think so, yes. May I just say a word. I am afraid one passage in my memorandum may create a wrong impression. I should like to be allowed to rectify it. I in no way wish to imply that the two colleges I mention by name are useless. On the whole commercial education in the lower sense is not satisfactory in Bombay. But the two colleges, the Jeejeebhoy Institution and Davar's College do admirable work indeed. I do not for a moment wish the impression to go abroad that I think that these colleges have failed in any way within their respective spheres. They are excellent institutions of their kind.

*Mr. C. E. Low.*—*Q.* You don't know anything about commercial training in Bombay or elsewhere in India ?—*A.* No, I am not well informed.

---

## WITNESS No. 351.

## INDIAN ECONOMIC SOCIETY, *Bombay*,

*Indian Economic Society.*

### WRITTEN EVIDENCE.

### *I.—Financial Aid to Industrial Enterprises.*

*Capital.*

This Society as such has no experience of raising capital for industrial enterprises but many of its members have and the Society itself has watched the inception and progress of many capitalistic ventures. It is, therefore, of opinion that it is very difficult to raise capital in India firstly, because there is not much capital in the country and secondly, because there are no banking organizations which mobilize the financial forces of the country and make capital easily accessible. The general public from whose savings capital usually comes is neither able nor willing to participate in new productive enterprises. The private capitalist fights shy of investing his small savings in new industries and is content with small interest brought by Savings Banks and Government Securities. When the industrial development of a country is dependent upon capital acquired largely through the gathering of small sums, special economic organizations like the Industrial Bank of Japan must develop on which should devolve the function of taking care of the capital and turning it to good account, i. e., making it productive, particularly by placing it at the disposal of others for industrial and other purposes.

Government assistance.

This Society is not aware of any financial aid given by the Government of India though they know of other Governments having done so. It is not possible to say anything about the relative importance of the different methods of giving Government aid to new or existing industries mentioned in the questions. One or other or simultaneously some may be employed as they suit the circumstances of each case. This Society would prefer to have assistance in the form of supply of machinery and plant on the hire-purchase system, particularly in the case of the hand-loom weaving industry, guaranteed Government purchase of products, and exemption of profits of new industries from the income-tax for limited periods. Government control or supervision should be allowed only when the assistance assumes the form of money grant-in-aid, guaranteed dividends, loans with or without interest and provision of part of share capital, and should be in the nature of Government audit or appointment of one or two directors.

Pioneer factories.

This Society has no experience of Government pioneer factories and is of opinion that Government might undertake to pioneer new industries, if it is found necessary to do so in the case of any particular class of industry. The pioneer factory, however, should either be closed if found unsuccessful, or should be handed over to private capitalists, or companies, preferably Indian, as soon as it has passed the experimental stage.

This Society is aware of factories started in the Bombay Presidency and elsewhere which have failed for want of proper provision of capital. Some of these factories were engaged in the manufacture of candles, matches, soap, frame-making, etc. The promoters of these factories at first either started with insufficient capital or found after they had commenced working, that their initial estimates were not very accurately framed. They had therefore to seek the aid of financing agencies. The present Joint Stock Banks could not accommodate them on terms suitable to them and so they were driven into the clutches of sowkars.

Industrial banks.

This Society is, therefore, of opinion that an Industrial Bank should be started for every province, with branches later on in big industrial centres. Government should lend all support they can for the establishment of such banks. They should place large funds at their disposal, if possible, without interest, but in no case at a rate which is more than 2 per cent. They (the banks) should be included in the list of approved banks or financial concerns in which Trustees are allowed to deposit Trust Funds. Remittances to these banks should be accepted by the District Treasuries and the Presidency Banks and they should be allowed to issue Bonds for a limited period not longer than ten years. Government should also guarantee a certain percentage of dividend. Fixed deposits for periods shorter than two years should not be received and no current account should be opened in these banks.

Co-operative societies.

The Co-operative movement in India was specially designed to assist agricultural credit, and in that direction this Society thinks it has served a useful purpose. But it has, our Society fears, not helped so far to solve the problem of industrial credit. If properly organized it will help the development of cottage industries, the most important of which is the hand-loom industry. A Society organized for the purpose should supply looms and yarn to the weavers and arrange for the sale of the cloth manufactured.

Limits to Government aid.

Government aid should be given to such industries only as have not established their position. In no case should Government aid be allowed to have the effect of discouraging fresh private enterprise. The main object of state help should be to stimulate private effort, and if that very object is likely to be defeated by Government aid it should, this Society thinks, be instantly withdrawn. There should be no limitation whatsoever on Government aid to a new enterprise even though it competes with an established external trade.

### II. *Technical Aid to Industries.*

This Society is of opinion that there is hardly any technical or scientific aid provided by Government to industrial enterprise, and if at all there is any, it requires to be largely supplemented. It has also no knowledge of noticeable benefits received by local industries from researches conducted by Government Departments. The manufacturing industries of India are in their infancy and the need for technical and scientific assistance is often very urgent. This Society knows of factories which are suffering for want of proper scientific guidance. It, therefore, suggests that laboratories attached to colleges should be so equipped as to deal with the small problems of local industries. The services of Government experts should be lent to private concerns on the same terms on which the loan of Government officers is made to the Native States. But if the concern is engaged in solving a new problem the loan of services should be free as far as possible. If the services of a Government expert are lent free of charge then it is only fair that the results of his researches should be made available to the public, but if they are fully paid for, they may be published after the expiry of a certain period.

Demonstration factories.

This Society believes that in this Presidency demonstration factories giving demonstrations of improved methods for certain industries such as soap, candle, matches, glass, oil-pressing and leather-tanning would render valuable assistance in developing these industries.

Research institute.

This Society is aware that the Imperial Institute in London has occasionally given very valuable information on references being made to it, but how far that information has led to the promotion of industries, it is unable to say. It is, however, firmly of opinion that a central Research Institute should be started in India for India's needs and that arrangements made with the Imperial Institute will be scarcely of advantage to India. All research work for India should be carried on in India and with the help of Indian intellect as far as possible. In the beginning it will be necessary to import experts from foreign countries but they should always be brought on condition that in course of time they would train Indians who would be able to take up their place. The system of referring research problems to colleges and other appropriate institutions may be followed in India.

The existing knowledge of the available agricultural, forest and mineral resources of the country is, in the opinion of this Society, quite inadequate and requires to be largely supplemented by further surveys which ought to be more extensive and detailed. The precise object of these surveys should be in the first place to find out what resources are available and then to suggest a machinery by which they might be exploited for the benefit of Indians. The results of these surveys should be published in the vernaculars of the Province and widely advertised.

This Society has no opinion to give about the value of Consulting Engineers appointed by Government to aid industrial enterprise by technical advice, but it is of opinion that the Consulting Engineers should never be allowed to undertake the purchase of machinery for private individuals. It should be entirely left to the persons or firms who want to buy the machinery.

### *III.—Assistance in Marketing Products.*

Commercial museums.

It is not possible for this Society to give any opinion on the utility of Commercial museums like the one in Calcutta as it has had no opportunity to see it. It however feels that a museum where indigenous and foreign articles are exhibited side by side to allow of their quality and price being compared with each other should, from the very nature of things, be useful and as Bombay is the gateway of foreign trade, a similar museum should be established here also. As for sales agencies, there is one here in Bombay called the Bombay Swadeshi Co-operative Stores. Its object is to make indigenous articles, especially those that are the products of unorganized cottage industries, known and easily available to the public. The agency has attained considerable success and is day by day becoming more and more popular. Similar agencies established at various industrial centres will go a long way in making Swadeshi articles very popular. Even travelling exhibitions of such articles would be welcome.

Exhibitions.

This Society welcomes the idea of holding exhibitions of indigenous articles in the principal cities of India. Their main object should be to bring sellers and buyers together and to encourage the sale of home-made products. Exhibitions of foreign articles need not be prohibited though they should always hold a subordinate position. In fact only such articles should be exhibited as are necessary to show by contrast the difference in polish and finish and those which may be useful in bringing those qualities in the home made articles. But it has been the opinion of some that these exhibitions have been more useful to the foreigners to advertise their goods than to the Indians to advertise indigenous products. No one will deny that such attempts on the part of foreigners should be carefully guarded against.

Trade representatives.

This Society approves of the idea of the appointment of trade representatives for India in Great Britain, the Colonies and other countries. These representatives should be Indians with business experience and should have thorough grasp of the industrial and economic situation of the country. The main object of the appointment of these representatives should be to secure help to the development of trade and industries of the country. They should not only be able to find out markets for Indian products but also should be able to supply accurate information as to which of the raw materials that go out of the country could be converted into finished articles. Furthermore, they should be in a position to answer all local inquiries as well as inquiries from India by official and unofficial organizations. Now that one trade representative with an assistant has already been appointed in England, more may be appointed in the Colonies and other countries, as trade develops and necessity is felt. These representatives will not, in the opinion of this Society, dispense with the need of temporary Commissions for special inquiries. Neither does it feel the necessity of having the trade representatives of a province in other provinces, but at the same time it is of opinion that a Bureau of information may be maintained in connection with the Provincial Departments of Industries.

Stores rules.

In the opinion of this Society the present system of making purchases of Government stores in England should be discontinued and tenders should be invited in India preferably from Indian firms. List of articles required should be published and samples exhibited in commercial museums. Preference should be given to articles manufactured in India, if of tolerable quality, even though they may not come up to the highest standard.

### IV.—Other Forms of Government Aid to Industries.

Supply of raw materials.

It has come to be a common-place saying that raw materials form an indispensable basis of material prosperity. Therefore if industries are to develop, the exploitation of the natural resources of India by the Indians should be made as easy as possible. In fact in the initial stages it should be possible for the promoters of new concerns to have the supply of raw materials almost free. The formalities in connection with prospecting and leases should be free from the difficulties incident to official routine and should admit of quick despatch. The amount of royalty to be fixed when the industry has reached a certain stage should be such as to be bearable by the concern.

Land policy.

This Society is not in a position to give a definite opinion as to how far the land policy of the province imposes any check upon the industrial development of the province. It is, however, of opinion that Government should give land for the development of new or existing industries on concessions which may vary in each case. But private owners must not be made to part with property compulsorily for industrial purposes. Wherever available subterranean or surplus surface water should be provided by Government on favourable terms for industrial purposes subject, however, to one condition that the claims of agriculture will not be overlooked.

### V.—Training of Labour and Supervision.

This Society thinks that the lack of primary education affects the efficiency of labour. The workmen, being unable to read and write, cannot thoroughly grasp what goes on around him and is, therefore, almost always groping in the dark. His heart is not in the work, and so he cannot possibly work with that zeal which is necessary to ensure efficiency. The best remedy for this evil is the introduction of free and compulsory primary education, and a beginning in this direction might be made in industrial centres like Bombay and Ahmedabad. So far as the knowledge of this Society goes, nothing appears to have been done by the industries of Bombay to improve the labourer's efficiency and skill.

Apprenticeship system.

The apprenticeship system cannot be said to prevail in Bombay. It has from time to time been tried in some mills and was found to work unsatisfactorily. The foremen under whom the apprentices were placed could not be made to take interest in them and therefore at the end of the period the boys were found to have learnt nothing. Unless some method is devised by which some material benefit is held out to the foremen who will successfully train apprentices, the system, it is feared, will not become popular. This Society has not been able to observe any advantages that have so far followed from the existing industrial schools. They have not hitherto been popular and have suffered from want of co-ordination and absence of a definite goal. It is the experience of this Society that day and night schools for mill-hands have not been a success. The chief thing that is primarily responsible for this state of things is lack of taste for education amongst these classes. Parents are unwilling to displease their boys who are earning members of the family by forcing them to attend these schools while they themselves feel shy as they are grown up in age. The difficulty might perhaps be got over by special settlements being created for them.

The industrial and technical schools and the commercial colleges should be under the control of the Director of Industries assisted by an Advisory Committee and not under the Director of Public Instruction. It is by placing these institutions under the Director of Industries who in turn will be directly under the Imperial Department of Industries, which, the Society believes, should be started, that uniformity and co-ordination could be maintained in the provinces and in the whole of India.

Training of supervising staff.

As regards the training and improvement of supervision, the Society believes that no special measures are necessary in India. But Government should see that when Indian students go out of India for the study of technical education they get all the facilities which students from other countries get. It is advisable to make arrangements with contracting firms in England to train a certain number of Indian students.

Mechanical engineers.

This Society is in favour of uniformity being introduced in the standard [illegible] examination for mechanical engineers held in the various provinces and the same Act being made applicable to the whole of India.

### VI.—General Official Administration and Organization.

Imperial Department of Industries.

The present arrangements of having one department for both commerce and industry do not meet the requirements of the situation. There ought to be an Imperial Department of Industries with a separate member having a separate Secretary and staff. The member in charge of this department ought to be a man preferably with business experience. The present Department of Commerce including Post, Telegraphs and Railways should continue to be separate. If possible, a Committee of advisors may be appointed to help the Member for Industry.

*Functions* :—The principal functions of the Imperial Department of Industries should be—

(1) Formulating schemes for the industrial development of the country.

(2) Development of Technical and Scientific education.

(3) Supervision over the Provincial Departments of Industries and Co-ordination of their efforts.

(4) Dissemination of industrial information.

*A Central Research Institute* :—There ought to be established a Central Institute of Research at some central place.

*Provincial Machinery* :—In every province a Director of Industries should be appointed, who would be directly under the control of the Member for Industries. He should, generally speaking, be an expert in the special industry of the province and should always, as far as possible, be assisted by an Advisory Committee like the one that at present exists in Bombay.

*Functions* :—The principal functions of a Provincial Department of Industries should be—

(1) The carrying out of industrial investigations and experiments.

(2) The establishment and management of Demonstration factories.

(3) Pioneering or helping to pioneer new industries.

(4) The granting of financial and expert assistance.

(5) The introduction and popularization of improved methods of production.

### *VII.—Organization of Technical and Scientific Departments of Government.*

There are no technical and scientific departments in this province, which the Society is aware of, capable of giving assistance to industries except to a limited extent the Agricultural College at Poona. No Imperial Scientific Technical Department appears to be necessary. If our scheme of Imperial Department of Industries as sketched out in the last part, *viz.*—General Official Administration and Organization, is accepted, all other departments will work under it. The Local Governments should organize their own Technical and Scientific Departments, but they should be under the Provincial Director of Industries. The experts who should fit in with the general scheme should be under the Provincial Director of Industries. The experts, who should be first-rate men in their line, should be selected from any part of the world, preference being given to Indians. The details about the co-ordination of the efforts of experts may be left to the Imperial Department.

Technological Institutes.

There are small technical schools in this province, the best known of which is the V. J. Technical Institute. Even this institute is far below the standard of Technological Institutes which the Society would like to see established in various provinces. They should be fitted into a general development scheme for the whole of India with a Central Research Institute. Every technical college should specialize in the technique of the principal industry of the province. For instance the College in Behar and Orissa should specialize in mining and metallurgy. To avoid overlapping, it is desirable that measures should be taken by the Imperial Department to co-ordinate the research activities of Technical and Scientific Departments and Technological Colleges.

Reference Libra

There is no library in Bombay of books of reference on technical and scientific subjects. It is essential that a good, up-to-date library is established here at an early date.

### *VIII.—Government Organization for Collection and Distribution of Commercial Intelligence.*

This Society knows little of the present system of collecting statistics though it may claim to know something of their distribution. These publications containing them are sold cheap, but they are not distributed widely to all important libraries which should be done. Uniformity in weights and measures should be adopted.

The *Indian Trade Journal* is a useful publication. It can, all the same, be improved by the incorporation of information about the development of trade and industry on possible new lines. Government should assist industrial journals which are likely to be of real use to persons actively engaged in industries. Such information as is of special value should be published through the various vernaculars as industrial supplements to the provincial gazettes.

The special monographs of the Forest and Geological Departments are very useful, but they, by themselves, are not enough to enable one to undertake to start a new industry.

## *IX.—Other Forms of Government Action and Organization.*

Certificates of quality.

The Society believes that a system of Government certificates of quality might help to find for indigenous goods a ready market in India as well as outside. When new things are first put on the market people always look upon them with suspicion. A certificate of quality will remove such suspicion. These certificates, however, should never be made compulsory. The work of getting the articles tested should be entrusted to the Director of Industries who would have them tested through reliable agencies.

Railway rates.

From the replies received in answer to questions sent by this Society to Indian industrial concerns, it appears that the manufacturers, especially mofussil ones, suffer heavily from want of concession in Railway rates. Such concessions as are allowed, do not materially help the manufactures, as these concessions are mostly for long distances. Besides, importing centres like Bombay and Calcutta, have advantages over inland places.

The complaints that have been received, lead to the inference that the Forest Department pays scant attention to the industrial aspect of questions with which the people approach them.

## *X.—General.*

The Director of Statistics in his annual Trade Review says that "India is in comparison with her vast resources still in the preliminary stages of her industrial development and that she is far too much dependent upon the export of raw products which should be utilized to a much greater extent than hitherto for industrial processes within India herself. The overwhelming dependence of her peoples upon agriculture—a dependence so serious in years of deficient rainfall and consequent unemployment intensifying famine conditions—should be lessened by the diversity of occupations which manufacturing activity brings." It has been an accepted axiom that the industrial prosperity of a people is a complex problem and cannot be achieved without the co-operation of capital, management, science and labour. The country is educationally backward, capital is scarce and shy, management inexpert, science undeveloped and labour unskilled. In these circumstances how is the wished for consummation to be reached? The initial impetus must come from Government. Capitalistic and credit organizations should be evolved, entrepreneurs trained, systematic research on a large scale should be developed and education should be made free and compulsory in order that skilled labour may be made increasingly available. The war has released many industries from the competition of the enemy countries. These industries could have been tackled by India but instead they have gradually been allowed to be exploited by other nations. Three long years have passed away and nothing of note yet seems to have been done. What is wanted is immediate action. The Government must once for all abandon its attitude of a mere looker-on.

(*Oral evidence was not given by any representative of the Society.*)

## WITNESS NO. 352.

*Mr. E. Eyres.*

MR. E. EYRES, *Firm of Messrs. E. Eyres & Co., Manufacturers of Surgical and Medical Equipment, Bombay.*

### W[illegible]TEN EVIDENCE.

I have the pleasure to state that I am contractor to the Government of India for the manufacture and supply of surgical instruments and field equipment.

My contract runs for a period of 5 years at a time, and provides for my manufacturing all such articles as are required by the various Government Medical Store Depots in India, whose demands are made through the Medical Storekeeper, Bombay.

Every article is paid for by Government at a fixed price; the cost of all materials, labour and working expenses of the factory are borne by myself.

The factory building is the property of Government built at their expense to my own ideas, and occupied by me since August 1914, prior to which my work was carried on in a much smaller building forming part of the Bombay Medical Store Depot. All the plant is my own property, and was laid down by myself at my own expense.

Ground space was very limited at the time the plans for the building were drawn out, and the building was made as large as the circumstances would admit of, but it has since been found to provide insufficient accommodation for our requirements and little expansion can be made in my business without increased accommodation. The output of the factory which for last year was to the value of about Rs. 2,65,000 is at about its maximum under the present circumstances and until provision can be made for further extension of the premises.

The capabilities of the factory are very great but the difficulties experienced with native labour are very hampering, and re-act very adversely on the possibilities which this special class of work should ordinarily show.

## SUPPLEMENTARY WRITTEN EVIDENCE.

I originally came out to India in charge of the Surgical Instrument and Equipment Branch of the Government Medical Store Department.

It soon occurred to me that something might be done in the way of manufacturing a few minor articles, and eventually Surgeon-General Hunter at my suggestion advised the Bombay Government to enter into a contract with me for the supply of the entire surgical requirements of their Government, or as much as I could deal with.

The scheme met with little encouragement even from the Government, and I had to wear down the strong prejudice which exists (not altogether without good reason I fear) against any article made in this country.

From the late Sir Pardey Lukis and his predecessor in office Sir B. Bomford I received help and encouragement, and the present standing of my factory is in a great measure due to the interest Sir Pardey Lukis always took in and the high opinion he held of my work. entrusting me with the Government demands for the whole of India or as much as we could possibly cope with.

**The labour questio**

I consider it a regrettable state of affairs that a country like India with all its wealth and resources should have accomplished so little in the way of manufacture of even the most trivial articles, and that it should almost entirely depend on the outside world for supplies.

In my opinion this is to a very great extent due to *the labour question, and the unreliability of native labour*, and I speak from the point of view relative generally to manufacture of the smaller class of article and higher grade of work.

I have been for many years in the closest touch with skilled labour, making it my study and hobby, and I am regretful to say that skilled labour has of late years deteriorated most terribly in numbers and quality.

Fifteen to twenty years ago I would have backed some of my native workmen on the then good wages of Rs. 30 to 35 per mensem against the best British workmen in the same line.

But what are they today ?—hopeless by comparison—after two years, training and on wages of from Rs. 45 to 60 per mensem one might get something out of them ; I allude to supposedly trained men.

In a great measure modern machinery has much to do with this state of affairs, the average native workman preferring to turn handles and levers to exercising his brain and hands on work which calls for ingenuity and trouble. As there will always be a great amount of work which cannot be turned out entirely by machinery and an enormous quantity of goods imported from foreign countries that *could* be done *well* in this country, skilled labour should be helped and encouraged as much as possible.

In my opinion only some form of legislation or enactment for the proper control of labour will save the native workman from himself, or put the question of skilled labour on a sound footing.

Experience has taught me that the higher trained and paid the native workman is, the more independent he becomes, the less inclined to regular work, and the more often his visits to his native country—when to return none can say.

Often we have had to almost beg of our men to come to work, and frequently, under the pretext of sickness, they have absented themselves and we have found them to be doing special work for outside firms, I regret to say often European firms of standing.

**The training of native lads.**

Carrying my thoughts back to the time of Sir Richard Temple, who was one of the first to visit my place, I remember he was so struck with the work we were then doing that he pressed me to start a school to train lads.

I readily consented, provided Government helped with funds and gave encouragement, but nothing further was heard of the scheme.

A training school for lads in various branches of trades should be established in each of the Presidency towns in India and should be under the support of Government. The lads should be trained in the higher grades of lighter work (smaller work) as I hold that a man, who has had a good foundation in the lighter lines of work, would after very little practice be quite at home with the heavier class. As an instance of this, the fitting up of the factory which your Commission visited a few days ago was done entirely by my own men, no outside help whatever being called in.

On the other hand, the average native who has been trained to heavier grades of work would never be able to cope with lighter and intricate work.

The school should be equipped with the lighter types of machinery, being less expensive and more easily laid down.

Lads entering the school should be paid wages equivalent to what they would be paid in the open market, as an inducement to continue in the school. This, admittedly, is quite the opposite to what governs Home training, but there is no help for it if the lads are to grow up into well-trained men, and it will be found impossible to retain the class of apprentices we need for the future development of industries unless they are paid for their labour during the period of training. As they advance, the more apt could be given a general knowledge of all branches comprised in the school—a man with a good general knowledge, natural aptitude, and energy is invaluable—and then if they cared to and could afford to do so they could take up technical work.

The expense of running such a school would be heavy but it could be lessened considerably by the assistance of work, on payment, from the many Government departments and the railways.

An alternative scheme in which I have every confidence would be to attach a small training school for lads to such manufacturing departments as the Dockyard, Small Arms, Gun Carriage, the Mint, Public Works, Electrical Department, Telegraph Department, Harness and Saddlery Factory, Cawnpore, X-Ray Department, Dehra Dun, the Railways, and my own Department. I name these departments as they each hold a limited number of skilled native workmen capable of giving instruction, under European supervision.

Such a scheme would not be costly, the heaviest item being building accommodation, and it would be almost self-supporting. With a proper understanding between the departments concerned each could lend the other assistance in work and advice. Lads carefully trained in such schools would be in great demand, could diffuse their knowledge to others and help much towards building up local industries.

Monopolies.

Opposed as one may be to monopoly, it is my firm belief that monopoly must play a prominent part in the successful advancement of manufactures in India.

There are certain classes of skilled manufactures, technically unknown to India, in which skilled manual labour working under trained and practical European supervision are the essential features. It is hardly to be expected that years of worry and trouble should be spent in training the labour, and money and energy be devoted to building up such a business, only to lay it open to the encroachments of capitalists, who, with no practical knowledge or experience available to justify them embarking on the same line, nevertheless enter into competition, relying chiefly upon their funds and the enticing away of skilled labour from pioneer concerns, as the back-bone of their new undertaking.

I have known many such cases in India; and what has been the result? The management depended upon the men for the knowledge and experience required in turning out the work—the men deteriorated because they were not under proper supervision—the work, in consequence, deteriorated, and that industry went to the dogs.

Such results only tend to dishearten those who have striven to establish local industry, and they also have the unfortunate effect of creating that great obstacle "prejudice" which will for many years to come stand in the way of the honest, practical and conscientious pioneer of industries.

Acceptance of locally manufactured goods.

This is a subject which has always attracted my attention, and in my opinion is the most vital point connected with local industry.

I hold that if more care, inspection and supervision were exercised in the acceptance of locally made goods, it would materially improve matters as regards quality of production.

It is a well-known fact that much local rubbish (I can give it no other name) is tendered and accepted, indulgence being shown on the plea of it being of local manufacture. Often one sees a really decent article as the first production, but the quality will be found gradually to deteriorate until it falls to a very low level.

This sort of thing should be nipped in the bud, as it is fatal to local industry, and the expression I have so often heard from makers, "Will it pass muster?"—should be replaced by—"Is it of the highest standard?"

I speak from great experience when I say that if Indian industries are to hold their own for any length of time it is necessary for all concerned to hold up the one ideal—"quality"—at all costs, not content with equalling similar imported articles but even bettering them, and never losing sight of the existing prejudice.

Without these qualifications and ideals advancement in local manufacture *cannot* and *never will succeed.*

Prices.

Cutting down of prices is a matter which calls for notice—a fair and reasonable price should be paid for a good article. Often contracts are entered into at rates which debar the supply of even a decent article—this fact must surely be known to those who accept tenders, and it should be discouraged, as it is conducive to lowering the quality of goods, and to pushing in cheap foreign stuff. In most cases I hold that if a local article equals in all respects the imported article, the price paid for it should approach as nearly as possible that of the imported article; there will of course always be a certain class ready to cut prices down—but they have not come to stay.

Financial assist

As regards the question of financial assistance from the Government to encourage local industries, this is a matter which would call for the greatest care and discretion. Only such industries as are quite new to the country, and such as have every reasonable prospect of success and in which Government are likely to have indirectly an interest, should be helped.

Generally speaking, the Indian who can show likely grounds for success in a new venture has little difficulty in raising funds from amongst his own people; on the other hand, the European has not the same financial advantages and is bound down by many restrictions which tend to hamper and cripple him from the very outset.

Unfortunately it is the general belief with many that funds only are needed to make a new venture a success, but those who have gone through the mill know that there are points of greater importance, and that often over-abundance of funds with highly paid and lavish management, and little attention paid to the practical working of the concern, have been the downfall of many a good venture.

## ORAL EVIDENCE, 30TH NOVEMBER 1917.

*Mr. C. E. Low.*—*Q*. Do you think that a certain amount of primary schooling would improve the general standard of Indian labour?—*A*. I think not.

*Q*. What effect do you think it would have?—*A*. My experience teaches me that the men who are a little bit educated give more trouble than those that are not. I have had many men working under me who spoke English well and had gone up to a certain standard—fairly well educated men, and they have never stuck on. They work for a short time and get dissatisfied. They expect too much. They leave and go outside and they are living on almost nothing. They do not care whether they work or not.

*Q*. Does that apply to primary vernacular education?—*A*. No. I cannot say that.

*Q*. Do you get many men who are literate in some vernacular language?—*A*. Of course, I do not know very much about the vernacular language myself, but all my men understand English more or less. They are always spoken to in English, and they are instructed in English and they pick it up very quickly.

*Q*. You do not notice whether the men take notes or write little things in vernacular?—*A*. I ask them to read the process. I give measurements and give instructions when I want a certain thing made in a certain way. They understand it. If I give a rough sketch they always understand. I have a pattern made in wood of the thing that has to be made in steel. On that pattern I write all the particulars and give the size and the measurements so that they can work it out. I find that very beneficial and helpful to them.

*Q*. How did you learn the trade yourself?—*A*. I have a natural aptitude for it. I have never had much training. At the age of 21 I was manager in a shop.

*Q*. You were never regularly apprenticed?—*A*. I was regularly apprenticed for a short time only.

*Q*. You say that these people are very independent and can live on very little. Is it not the case that they have a very low standard of comfort? They do not care to do more work and earn more money.—*A*. But they spend money in other ways. They spend money on ceremonies, going to their country, and drink.

*Q*. There is a limit to what they can spend on that sort of thing. It is regulated more or less by custom.—*A*. I believe myself that my men are more or less well off. At the present time I have got 16 of my best men away, some of them drawing Rs. 65 to 70 a month. Some went away on five days' leave and others on fifteen days and a month. Some of them have been away eighteen months and many of them nine months and six months.

*Q*. Are they not actually in debt to money-lenders?—*A*. I do not think so generally. We help them largely. I give advances. I help them in every way I possibly can. I pay their debts very often.

*Q*. In your supplementary evidence you make suggestions for training lads. One is the idea of a training school and the other is training classes attached to manufacturing departments. Would not the difficulty in the case of the first suggestion of a training school be that these boys will not be working under shop conditions, and it is almost impossible to reproduce shop conditions in a training school, and when they go out to work they do not like shop hours.—*A*. It should be worked much on the lines of a technical institute. In a technical institute you get a better class of men, men who have means and can afford to waste their time. They can afford to utilize their time in study. Whereas the class of men that we want to render good workmen cannot afford to do that. They have not got the means unless they are paid for the work they do.

*Q.* It is a constant complaint that boys who come out from the crafts schools and technical institutes are never taught to recognize the value of time, that they are not taught to work long hours which are necessary in organized shops, so that when they come out they do not do as well as the bazaar men using inferior methods, because they do not recognize the value of time and have not been trained to work under commercial conditions and then they do not like shop hours.—*A.* Then they had been very badly trained. That is the secret of success at home. A responsible man is in charge. If you put the right man in the right place one with a good sound practical knowledge, a man who takes an interest in his work—it is a hobby with him.

*Q.* We have got lots of places where they give excellent training but the trouble is that they cannot reproduce in the training school shop hours and shop conditions. That is the universal complaint.—*A.* Take our place for instance, my factory. Suppose we had a school attached to that. They would work on the same conditions as my men, and as they grew up and began to be useful they would be transferred from the school to my factory.

*Q.* That is another story.—That brings us to your second suggestion, to attach classes to concerns which are working on actual commercial lines. Which do you prefer ?—*A.* By an attached school I mean a building attached to the existing factory, so that you have the same control over the lads as you would have in your own factory.

*Q.* Would you pronounce definitely in favour of the training school or your alternative scheme of having classes attached in the way you say to good commercial concerns ?—*A.* The alternative scheme is a much cheaper one, and as an experiment it would be very much easier to run. It struck me that if you tried this sort of thing as an experiment, then eventually you could introduce technical training schools in each Presidency or in large towns in India. To incur a lot of expenditure on heavy machinery and building and all that sort of thing when you are not absolutely certain that it is going to be a success would, I think, be a mistake.

*Q.* That is an added argument in favour of your alternative scheme.—*A.* Yes.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* In your note you say "Opposed as one may be to monopoly, it is my firm belief that monopoly must play a prominent part in the successful advancement of manufactures in India." Do you suggest that if a new industry is started monopoly should be given to it ?—*A.* Certainly.

*Q.* Why ?—*A.* If there is a chance of its being likely to be successful.

*Q.* Cannot any industry be successful without a monopoly ?—*A.* I do not say any. I allude there to high class and special industries and not to ordinary things that are made by everybody and anybody.

*Q.* Can you name any ?—*A.* I allude to my own and other high class work.

*Q.* Monopoly in what ?—*A.* Electrical work and heaps of other intricate work.

*Q.* Monopoly in what ? Allowing the man to have only one institution in the city or buying from one institution ?—*A.* Allowing the man to have one institution and buying from that man.

*Q.* And not allowing other institutions in the city ?—*A.* No.

*Q.* You have got your own factory here. Supposing I want to start a factory of the same kind I must not be allowed to start one ? Is that your contention ?—*A.* No. You may start a factory or half a dozen factories if you care to. You would have plenty of patronage outside provided the quality of your work commands it. That is the secret. I need not depend upon Government for work. Everybody knows that I can command work from the whole of India.

*Q.* What I want to know is this, do you mean by monopoly that Government must buy from one man only ?—*A.* Yes. For this reason that a man with ability and with a good practical knowledge is not coming out here to start a factory, spend years of worry and trouble to train up the establishment, and another man comes along and offers a higher wage and takes the men away, and all the labour that you have trained is thrown away. But if you start a business and you are not competent to work it and you have not the ability, that business goes down and down until it has to be discontinued. How many men in Calcutta and Bombay have started my own line of business ?

*Q.* What kind of monopoly ought it to be ? Monopoly in buying the manufactured products, or in starting a factory ?—*A.* Not as regards a factory. You may allow any number of factories to be built, but Government support should not be given. If it is a new thing and the Government have confidence that that man has the ability to work it conscientiously and successfully, I think monopoly should be given to that man.

*Q.* That is in buying only ?—*A.* Patronage, or whatever you wish to call it, if you want Government to support it.

*Sir D. J. Tata.*—*Q.* With reference to your reply to Sir Fazulbhoy just now, you say that the man who starts first, and at great trouble brings up a new industry, should get the monopoly. But what will happen in cases where there is an already existing business, and a man comes out from Europe to carry on the business also? Does it not break through the other man's business?—*A.* But if the existing man is worthy of support he would get it. If he has not received the proper support of Government, probably it is the fault of the existing firm.

*Q.* In one place you say that the workmen you trained were taken away by other people. That is one complaint that you make.—*A.* That is a very great complaint that I have to make.

*Q.* Some days ago we had the representative of a firm who are manufacturing practically the same things, who said that they used to manufacture artificial limbs, but your factory came and stole away all their workmen whom they had trained.—*A.* I have much to say to that.

*President.*—*Q.* I want you to give us some practical ideas as to how we can prevent the stealing away of workmen. Is it possible to prevent the stealing of workmen from one factory by another? The men are not slaves. Unless you can produce some kind of practical suggestion, there is no use in discussing that point.—*A.* There is nothing to say against labour being stolen away from one factory to another. Many of my own men who were trained by me are leading men in the Railway, the Government Dockyard, and the other Government Departments although they had been trained in my place. I have no objection to that. But what I object to is men being taken outside by others in the same line.

*Q.* You cannot suggest any way of preventing it because the men, after all, are free men, and you would not like to be bound down to any particular institution or to Government if you want to be free to take work elsewhere or to take up business elsewhere., How can we get over this difficulty, that is the question before us. There is no use of discussing the relative merits of two firms.—*A.* Men going from one factory to another? They are free agents and you cannot prevent a thing like that. The only thing I say is that people who do business in the same line and are not competent to carry it on rely on these men, and then they have a tendency to entice them away because it is their only hope of doing any business whatever.

*Q.* Firms do not improperly steal away one another's labour. There is a certain amount of etiquette. You do not actually entice one another's labour.—*A.* But what they do is offer higher and excessive wages.

*Sir D. J. Tata.*—*Q.* With reference to the school that you propose, you say "The school should be equipped with the lighter types of machinery, being less expensive and more easily laid down." What do you mean by "lighter type"?—*A.* Not the heavy machinery that you find in the Railway and other big Government departments.

*Q.* "The man who works upon heavier machinery cannot do lighter work." You mean by that, that if a man has worked on a higher class of thing, he cannot work on a lower class?—*A.* If he has worked on heavy, or call it clumsy work, he cannot do light high class and intricate work.

*Q.* By "Light machinery" you mean machinery for high class work? You say you put the boys on "light work." Does that mean higher class work, instead of the more clumsy work?—*A.* I mean higher class work.

*Q.* You say "The lads should be trained in the higher grades of lighter work (smaller work) as I hold that a man, who has had a good foundation in the lighter lines of work, would after very little practice be quite at home with heavier class." But now you say that if the man had worked on the heavier class he cannot do lighter work. It is not clear to me what you are driving at in this sentence.—*A.* I think it is quite clear that the man who does light work and who has been carefully trained in light work can take up heavy work. But a man who has been trained in heavy work, is too clumsy and too heavy for light work.

*Q.* Towards the end of your supplementary evidence you say "Generally speaking, the Indian who can show likely grounds for success in a new venture has little difficulty in raising funds from amongst his own people; on the other hand, the European has not the same financial advantages and is bound down by many restrictions which tend to hamper and cripple him from the very outset." This is a strange experience, because all the complaints we have had so far have been from Indians who complain that they never get any assistance financially.—*A.* Not from their own people.

*Q.* That is the very complaint. When we ask them why no industry was started, they say that they do not get any financial assistance from anybody.—*A.* I have always understood that if a concern is likely to be a success they have no trouble. Friends always collect and gather round them and help them in every possible way. I am not alluding to the bigger class of work but to the smaller class of work. I am alluding to the light intricate and small articles that are imported which may be easily made here.

*Mr. G. A. Thomas.*—*Q.* You say "In most cases I hold that if a local article equals in all respects the imported article, the price paid for it should approach as nearly as possible that of the imported article." Do you mean just for a few years when the industry is being established in this country, or for all times?—*A.* All times.

*Q.* Why should the consumer in this country have to pay more for an article than the consumer in the United Kingdom? What is the Government source of revenue? It is the taxpayer in this country, and why should the taxpayer in this country pay more for the articles used by Government than the taxpayer in the United Kingdom?—*A.* That would not be more. That would be Rs. 15 a pound.

*Q.* The article can be sold at a less price at home because there is the cost of freight and insurance and custom and all the rest of it.—*A.* The article which costs one pound sterling should be bought at the rate of Rs. 15 out here.

*Q.* An article which costs one pound in England may perhaps cost 25 shillings out here. You mean that the price paid for an article made in India should be the same as the price paid for a similar article in England?—*A.* Yes.

*Q.* You refer to the deterioration of quality. At first articles are turned out of high quality and then they fall off. Do you think that any system of certificates of quality will stop that? Could you possibly counteract that tendency by having certificates of quality granted by Government?—*A.* I do not think so.

*Hon'ble Sir R. N. Mookerjee.*—*Q.* You have suggested in your note "In my opinion only some form of legislation or enactment for the proper control of labour will save the native workman from himself or put the question of skilled labour on a sound footing." Have you any idea as to what sort of enactment you want?—*A.* I cannot say that. I have not thought over the matter.

*Q.* You do not know what control you want?—*A.* There ought to be some control.

*Q.* Do you wish that they should not leave one factory and go to another?—*A.* To keep them more regular at work.

*Q.* So that if they do not go to work regularly they will be punished?—*A.* In some ways.

*Q.* Is there any such enactment anywhere else in the world?—*A.* They are doing it now in England.

*Q.* In war time.—*A.* Take a workmen who is well paid. He never completes a month. Some workmen are always 7 days, 8 days or 10 days absent. My books will show that. There is no reason for it.

*Q.* As far as you are concerned, you do not know what reasons they might have got?—*A.* Of course in the case of sickness it is a different matter altogether.

*Q.* From the employer's point of view you think they have no reasons to be absent?—*A.* Not so frequently.

*Q.* And your objection to educating these men is they will want higher pay and they will become a little more independent.—*A.* My objection is that they are never satisfied.

*Q.* It comes to that.—*A.* They take up an appointment and work for a short time and they are off somewhere else. They never stick to anything.

*Q.* They go somewhere else because they get higher pay. Either they are not satisfied with your treatment or they want higher pay. Otherwise why should they leave?—*Q.* I cannot give any reason why they leave. They are too proud to work.

*Q.* Is it not a fact all over the world that wages of workmen are rising steadily?—*A.* Yes.

*Q.* You object to the Indian labourer asking any higher wage?—*A.* I do not say that. I pay double the wage I used to.

*Q.* What is your complaint then here?—*A.* My complaint is that the men who had been trained in a technical institute are too big in their ideas to work and too independent. They think that it is lowering their dignity to sit down and learn work.

*Q.* Has not slavery been abolished since the advent of the British rule?—*A.* They come for a day or two, to learn work, and then they get dissatisfied and leave. They can do well if they apply themselves to their work.

*Sir D. J. Tata.*—*Q.* How is it they succeed in finding other work if they are workmen of that type? I mean, in getting better paid work?—*A.* I cannot say that they do.

*Q.* They leave you simply without any prospects?—*A.* I have made inquiries, and I have found that they have been wandering about doing nothing. For instance a case occurred the other day. A man left me and I sent for him. He was useful though not brilliant. I offered to pay him more pay if he would come back and he sent word no. He would not come back even if he was paid Rs. 100 a month. It is their pride.

*President.*—*Q.* They have no ambition to improve their situation in the firm?—*A.* They have a lot of ambition, but they have no patience. They want to get up too rapidly. The educated men that come from the technical institute do very well, I might say splendidly, but unfortunately they want to get to the very top at once. If they were to come to my place and work steadily I would give them Rs. 65 to begin with.

*Q.* You have obtained very good results in organizing labour?—*A.* I have.

*Q.* And is not the whole of it entirely Indian labour?—*A.* Yes.

*Q.* So that you have succeeded in training Indian labour and turning out good results?

## WITNESS No. 353.

### MR. R. B. EWBANK, I. C. S., *Registrar of Co-operative Societies, Bombay Presidency.*

### WRITTEN EVIDENCE.

### *Financial Aid to Industrial Enterprises.*

**Co-operative societies: Weavers.**

The premier village industry of this Presidency is hand-loom weaving. There are 257,000 cotton weavers and 23,000 silk weavers in this Presidency who carry on their industry in village workshops as against 193,000 cotton weavers and 2,000 silk weavers employed in power mills. The disadvantages under which the cottage weavers labour at present are—

(1) Supply of yarn is controlled by village merchants, who advance it to weavers at exorbitant prices.

(2) The weavers have often to sell their manufactured cloth through these same sowkars at inadequate prices.

(3) Most weavers are deeply indebted and pay rates of interest which make their extrication by their own efforts impossible. This condition prevents them from putting their heart into their work. Owing to their hopeless outlook they remain as a rule illiterate, addicted to drink, unenterprising and often dishonest.

(4) The technical improvements which would enable them to increase their output without destroying the special characteristics of their craft are not generally known to them. They are still for the most part unfamiliar with fly-shuttle pit-looms, improved dobbies, English healds, beams, etc., and their methods of warping and dyeing are slow and primitive.

(5) The seasonal character of the demand for their cloth compels them to depend on the sowkar for advances during the slack season.

The functions which can be performed by co-operative societies are—

(1) Purchase of yarn in large quantities at wholesale rates from the mills. This is advanced to members and its price recovered when their cloth is sold.

(2) Provision of cash loans at reasonable rates of interest for the purchase of tools or material, for livelihood during the slack season, for weddings, and other necessary ceremonial and domestic expenses.

(3) The establishment of a shop for the sale of members' cloth, and during the slack season for accepting cloth on hypothecation and granting advances against it for further work.

The easiest line of approach is to start with function (2) only. Credit business is the simplest to manage and loans at cheap rates are always appreciated quickly. There are 32 weaving societies in this Presidency with a working capital of 1½ lakhs of rupees. Of these 14 do credit business only. Twelve have added the business of yarn-supply, but have been much embarrassed by difficulties due to the war. Four have taken up the business of retailing manufactured cloth; but this has not been very successful. To supplement this work six village weaving schools have been formed, and demonstrations of improved looms are constantly held at various centres.

The main difficulties with which these weavers' societies have to contend are—

(1) Their lack of credit. The weavers have no real property and only a little chattel property. Their personal credit, derived from their thrift and honesty, is at first almost *nil*. It is therefore impossible to lend them as much money as they require. Since the society cannot at once make them independent of the sowkar, the sowkar takes advantage of the fact to grind down anyone who joins a society with special virulence.

(2) Their illiteracy, suspicions, prejudices and their frequently low type of character make them unfit to manage a society themselves on co-operative lines. They make continual mistakes and tend to be very slack about recoveries. They need constant and close supervision by a Government officer for three or four years before they can carry on their own society successfully.

(3) The fluctuations in the markets for yarn and cloth are generally not understood by them and cause them loss when they occur.

I have dealt with the case of the weaving industry at some length, because it serves as a type of the sort of functions which co-operative societies can undertake, and because it is the only cottage industry in connection with which any real progress has yet been made in this Presidency.

With regard to the leather industry Government have ruled in paragraphs 3 and 4 of Government Resolution, General Department, No. 5352 of October 27th, 1910, that co-operative societies ought to be pushed forward among all classes of leather-workers with the object of furnishing them with credit on reasonable terms and of organizing the supply of raw skins and hides for their use. Chambhars, dhors, and mochis are found scattered over the whole Presidency in very small groups and not concentrated in special centres. Therefore they usually join the common village credit society in cases where the other members will admit them. There are only some 7 or 8 societies confined entirely to leather-workers, and none of them is sufficiently well-managed to encourage further progress in this direction. Theoretically they ought to be of great assistance to these men, but the practical obstacles are—

(1) Their extreme illiteracy, and in places their drunkenness and dishonesty. The tanning classes are quite incapable of co-operating or managing any sort of society in a businesslike way without very close supervision and control. The boot-making classes are generally more respectable, but they have not the same need for co-operation as the lower section of the community.

(2) The village tanners are taking to other industries, which are cleaner and more profitable. From a social point of view, as distinguished from a commercial, the transfer of the tanning classes, who are a particularly degraded sort of outcasts, to other and more honourable lines of industry is entirely good. The rise in the foreign demand for raw skins and hides, the lack of any agency to show tanners the best tanning materials, and the best methods of flaying and tanning, the increasing use of foreign-tanned leather in India and so forth makes it certain that the industry will decline still further.

(3) The tanners are deeply indebted and the supply of hides is generally in the hands of some local Mussalman, who controls the whole market. In Kanara the tanners pass bonds promising not to buy hides except from their own sowkar. Their societies are so feebly managed and have so little credit or capital that a determined sowkar has not much difficulty in checkmating them. The only hope for a society of this sort is to be taken up by some philanthropic pleader or country gentleman who will take constant pains in training the tanners and helping them to overcome their difficulties. Such men are rare.

The boot-making classes seem to be doing very fairly well. The bigger merchants have plenty of business and turn out very fair work. They have a monopoly of low-priced work in European styles and of all work in the Indian style. They are hard-working and prosperous (though addicted to drink). But they are not in my experience keen on co-operative societies, firstly, because there is hot competition among themselves in the sale of their goods, and secondly, because a good many of them have sufficient working capital of their own. Since it is only cheap credit that they require, it is unnecessary to start separate societies for them. They can join existing credit societies.

I wish to make it clear that I think that before leather-workers can be organized successfully on a co-operative basis, it is essential—

(1) That more progress should be made by the State in educating them both in the three R's and in improved technical processes in connection with their craft.

(2) Their social status must be improved so as to give them a chance of maintaining some measure of self-respect. Without it they have no incentive to be honest or sober or thrifty. Those qualities are the starting point of all co-operation.

With regard to the oil-pressing industry, it may be noted that the total area in the Presidency under oil-seeds is 4,283,000 acres. Of the oil pressed in the Presidency, it has been calculated that concerns using hydraulic processes crush about 100 tons of seed per day, expellers about 25 tons per day, rotary ghanis 30 tons per day, and country ghanis approximately 125 tons per day. The telis, who manage the country ghanis, are therefore declining gradually. They are an honest and laborious class, who work for very long hours for a wage which rarely exceeds six annas a day. Their main difficulties seem to be—

(1) To secure money at a reasonable rate for buying seed when the market is low, for providing storage for it, for purchasing cattle and additional ghanis and for domestic expenses.

(2) In the off season the fluctuations in the seed market, in which prices may vary by as much as 25 per cent., make it difficult for them to catch the best time for buying seed and to secure an assured profit.

(3) They do not know how to make the best use of their by-products.

Co-operation is a remedy for the first difficulty only. Only one co-operative society has yet been started for telis. Its capital is insufficient and it is not doing well. It is probable that owing to the seasonal nature of the demand, a society composed only of telis would not do very well, and that their best course would be to join an ordinary village society, which includes agriculturists and the other usual classes of village workers. Experience is insufficient to enable me to go further than state as a general proposition that adequate finance by a co-operative credit society would be extremely useful in relieving them from debt and in enabling them to carry on their industry profitably.

Fishermen.

There is great scope for the development of co-operation among the West coast fishermen, Kolis and Sonkolis. By nature they are stupid and addicted to drink, but they are honest and hard-working and their wives are very intelligent business women. Their difficulties are—

(1) The distribution of fish brought into the Bombay harbour. They do it by head-loads and could save much trouble and expense by jointly engaging carts to transport their catch to the markets.

(2) The preservation of fish, caught on the coast, until they can be transported to Bombay and sold there. At present they either cannot get ice at all or have to pay 8 annas per maund for it. The Bombay Ice Company has offered to sell ice at 4 annas per maund, if a co-operative society will give them a firm contract.

(3) Every fisherman aspires to own his own boat, if he can find the funds and has to buy a set of nets costing Rs. 500 at least once in two years.

One little society of Sonkolis has been started at Colaba with a capital of Rs. 1,800 and is working well. It is probable that other societies of this class will be formed before long. At present the Kolis leave the sale of their fish far too much in the hands of middlemen and lose their fair share of the profits.

These are not the only industries in connection with co-operative societies might be encouraged; but they are the ones which should in my opinion be taken up first.

*Technical Aid to Industries.*

Organization of expert assistance Bombay weavers

Government have placed under my control 3 Weaving Expert Assistants on Rs. 75—5—85, and one Weaving Inspector on Rs. 35 who are engaged exclusively in working for the improvement of the hand-loom weaving industry.

2. One of the expert assistants and the inspector are in charge of the 32 abovementioned weaving societies. Five of these societies are exceedingly good, and 16 are quite satisfactory. Nearly all of them carry on their credit business reasonably well; but the direct purchase of yarn from the wholesale merchants which is one of their main objects has been found to be very difficult for the following reasons:—

(*a*) Hardly any society has sufficient capital to finance its members fully for necessary domestic expenses, purchase of implements, etc., and also to supply all its members with yarn. Societies cannot offer sufficient security to enable co-operative financing institutions to finance them to the full extent of their needs.

(*b*) Even if it were always possible to sell cloth immediately after it has been manufactured, the society must still be in a position to stock yarn sufficient for three months' needs in order to prevent supplies giving out unexpectedly. With an average membership of 70, and nearly all members owning more than one loom, it is evident that the quantity of yarn so required is very considerable. As a matter of fact the market is in nearly all places seasonal, and during more than half the year the society would have to continue to advance yarn in order to keep its members employed without realizing any recoveries. In several places merchants will buy cloth during the off season, but at prices which leave little profit to the weavers. But at many other centres merchants will not buy the cloth at all in the off season, unless the yarn has been obtained from them.

(*c*) The wholesale merchants always insist on payment within about ten days and charge heavy interest on overdue payments from societies.

(*d*) Societies sometimes lose on wholesale yarn purchases owing to unexpected fluctuations in market prices

3. It has been suggested that a central yarn depôt in Bombay might meet the difficulty, and I have made several inquiries with a view to starting such a depôt. My own view now is that it would not be worth while, because

(1) the weavers of different localities prefer different brands of yarn and use different counts and colours. Many can buy their yarn most cheaply from the spinning mills

prise of the capitalist classes generally. He would therefore inevitably be inclined to exploit labour and to hold that any additions to the field of recruitable mill-labour are desirable, and that it would be an advantage to commerce generally if decaying industries were allowed to die, and craftsmen were converted into efficient mill-hands. The Director of Village Industries on the other hand would do his best to support the small independent master craftsman in his struggle to survive in competition with the mills. He would bear in mind other objects besides the sole one of increasing the total wealth and productiveness of the country. The two officers would stand for almost antagonistic ideals, and the Director of Village Industries would try to preserve crafts capable and worthy of being preserved, and to make the period of transition for other craftsmen as gradual and free from hardship as possible.

(2) Commerce and power industries involve questions of Imperial policy and would no doubt be largely controlled by the Government of India. Such control would be entirely out of place in connection with village industries, of which the local conditions vary greatly from districts to district. The development of village industries is a purely provincial matter and ought not to be subject to external interference.

(3) The Director of Power Industries would soon find that the thing that told most with the public, the newspapers, big merchants of Bombay, and possibly even with the Government, would be the encouragement of large and impressive commercial enterprises. Being only human, he is almost bound to neglect the more obscure and less attractive portion of his duties in connection with village industries. This tendency would be accentuated by the fact that the development of village industries is certainly a sufficiently complicated and large problem to require the whole time of a controlling officer.

I would therefore recommend the creation of an independent Director of Village Industries in charge of the 45 home industries now surviving in this Presidency. He should take over the control of all demonstrations and technical schools for craftsmen, and should be placed under the Development Commissioner when such an officer is created, and until then under Government. He should be an experienced administrator with a staff of expert assistants at his elbow. He should be intimately acquainted with the vernaculars, and be the sort of man who could overcome the prejudices and suspicions of a very backward class of villagers. The survey of industries should be completed by experts under his control, and he should see that suitable measures are taken to give effect to the recommendations made in the course of this survey.

### ORAL EVIDENCE, 30TH NOVEMBER 1917.

*Mr. C. E. Low.*—*Q.* Have you ever considered the question of the amount of yarn produced by the mills and imported, and consumed by the hand-weavers?—*A.* There is a report published by Mr. P. M. Mehta in 1912 in which he says that the supply of English yarn sent annually to India up to 1912 has remained constant from the beginning.

*Q.* Is the yarn which is spun by the mills used much for any other purpose except hand-loom weaving?—*A.* I am afraid Sir Fazulbhoy will be better able to tell you than I. I believe it is mostly used by hand-loom weavers, but not entirely.

*Q.* You do not know of any other local industries likely to use it on a large scale?—*A.* No.

*Q.* The difficulty apparently you experience over financing co-operative weaving societies is the large lock-up involved in undertaking to sell their goods in view of the seasonal character of the demand for hand-loom cloth? Is that so?—*A.* Yes, that is one of the great difficulties.

*Q.* Supposing you gave them financial assistance by buying them yarn, and you don't want to help them to sell their cloth: do you find that that position is a difficult one to take up?—*A.* Our difficulty is that the ordinary sowcar who advances yarn to the weaver also insists on taking his product. In this Presidency about 60 per cent. of the weavers are indebted. I should say about 30 per cent. of these are completely indebted and are bound to the sowcars, and for these people we could not do anything. We can do something in cases where they are still tottering on the brink of dependence, but the difficulty remains that the sowcar will always embarrass us if he can.

*Q.* Is it impossible to confine the scope of the co-operative society either (1) simply to providing the men with cash for purchasing yarn, or (2) to buying them yarn, without going further?—*A.* It is possible. We have done that at Dharwar. They have collected there a capital of 12,000 rupees for buying yarn only, and the weavers have all agreed to the scheme. I think it can be done, but it is rather difficult

*Q.* What you say rather points to a solution of the question being found either in a big central scheme on co-operative lines with a very broad basis having numerous branches in smaller centres, buying yarn for the weavers and selling the cloth for them, or in introducing the small enterpreneur who would also correspond in a way to the present sowcar: which solution do you think is the most likely one?—*A.* I do not think a central depôt would solve the question of how to get rid of the cloth. A central depôt could solve the problem about the supply of yarn only.

*Q.* Have you had any experience of Government relief for weavers in times of famine?—*A.* Yes. Last year we got about 15,000 rupees from the Imperial War Relief Fund to help weavers in time of depression.

*Q.* That is not exactly famine relief. What I mean is, you take the weavers of a large centre who come on Government relief during famine. Well, I have just had papers from the Central Provinces which show that they have introduced this in several districts and they have made a profit of 15,000 rupees on the sale?—*A.* We have experience of that. The Mansion House fund of 1900 left a balance of 25,000 rupees which has been used for this purpose. The Collector decided to put it into a co-operative society and it is now working at a profit of 600 rupees a month from then up to date.

*Q.* How is that run?—*A.* It is run by an officer of the municipality as a sort of charitable institution. He gets only a premium for running it, and the weavers are supplied with yarn and they pay back the money at a small rate of interest.

*Q.* Those are co-operative societies run entirely by beneficent institutions. As a rule Government weaving relief is run by giving out yarn to a number of selected individuals, and receiving so much cloth from them to be put on the market when the famine is over. You are working here under very advantageous circumstances, and sometimes the loss to Government is very slight. Also in these times owing to the rise in the value of cloth the profit is quite considerable. But in view of that do you think that any organized cloth-selling arrangement which would stock large quantities of cloth if necessary and sell it at a favourable time would be a financial success? or would there be a loss owing to seasonal difficulties?—*A.* I think there would be a loss. The chief difficulty would be that the demand for cloth depends very largely on the harvest. If there is any failure of harvest, the fund would be left with all the cloth to carry over for two years.

*Q.* Then there is a difficulty as to who would bear the loss?—*A.* The loss should be shared.

*Q.* What would you consider a fair proportion between the co-operative society and the weaver?—*A.* I am opposed to a central organization because the demand for hand-made cloth is always a local one.

*Q.* That is purely hand work, the saris?—*A.* I believe only 5 or 6 mills make saris at all in this part of India. I do not think they make coloured saris at all: only a very few mills do that.

*Q.* Would you be in favour of the other suggestion, namely, the introduction of the small enterpreneur? Do you think that is a good solution?—*A.* For the sale of yarn?

*Q.* Small local factories for the use of power plant and improved looms?—*A.* I am not in favour of him at all. I want to secure by helping these weavers with co-operative credit societies that they should be independent and that the co-operative credit societies will in another 10 years be able to carry over all the cloth themselves locally.

*Q.* You think that the weaver will be helped by the co-operative credit society, and you will get enough brains to gradually build up the industry and that advances to the co-operative societies will be possible from the secondary banks or central banks.—*A.* That depends on the character of the society wanting the loan.

*Q.* But in practice one finds the secondary banks very unwilling to finance weaving societies because these could not sell cloth to any considerable extent: have you got the same difficulty here?—*A.* We have; there is real ground for the hesitation of the banks.

*Q.* You mean to say that the attitude of the central bank is, in your opinion, a perfectly reasonable one?—*A.* Yes.

*Q.* In considering the question of employment of this kind, have you found the census figures of occupation reliable and satisfactory?—*A.* Well, I have taken them at their face value.

*Q.* Supposing you started with a supposition based on the consumption of yarn in the hand-loom industry, is it less unreliable?—*A.* Yes.

*Q.* And if you found it to be the case that the census shows a tremendous decline which exhibits startlingly irregular features between the different provinces, what deduction would you draw from it?—*A.* Our province does not show any decline in hand-loom weavers. This shows that the number engaged is about constant. Of course, you might also take into account the increase of production owing to using fly-shuttle looms, power looms, salvation army looms and so forth, but that is not very considerable as yet.

*Q.* You think it is not enough to make any very big difference?—*A.* No, I do not suppose it is.

*Q.* Do you consider that the occupational figures in the census returns are adequate? Your attention has probably been drawn to one thing, there are no separate figures for hand and mill weavers in the census returns, although there was a separate census for mill workers?—*A.* I take the census figures for weavers and deduct from it the operatives in power mills and take the remainder as hand workers.

*Q.* Do you think that the occupational figures really represent what happens? That is to say, there are so many classes of people with subsidiary occupations; do you think that the result of the record is to show the real occupations of the people?—*A.* I am sorry my experience is not really large enough to say that.

*Q.* You have not made a comparative study of the different occupations in the different provinces?—*A.* No, I have not. It is quite true in this Presidency a large number of weavers have agriculture as a subsidiary occupation in the same way as agriculturists have weaving as a subsidiary occupation.

*Q.* Then do you think that differences in occupation could be shown in greater detail with advantage? For instance, a glass-blower is quite a different man and of very much more service than an ordinary worker in a glass factory: at present they are all lumped together. Supposing you want to know how many blowers there are, you can only do that by a separate inquiry?—*A.* Yes.

*Q.* Are there occasions on which such information would be valuable?—*A.* Yes, certainly.

*Q.* Do you think that the amount of time and energy spent at present in ethnological details is commensurate to their value to the country? Would it not be better to have more occupational information?—*A.* I suppose knowledge of the country is never wasted, and such information has its scientific value for ethnological enquirers outside the country.

*Q.* But do you think it is worth while? Don't you think they might spend the time and money in getting better occupational figures as a basis for subsequent industrial work?—*A.* That is so; I think they might.

*Q.* You speak in one part of your evidence about industrial surveys apparently with reference to your Department: would you say that such surveys would serve as a basis for administrative work?—*A.* Yes.

*Q.* Information of that sort is generally held by witnesses we have examined to be valuable only for administrative work?—*A.* Yes.

*Q.* And occupational figures of the kind I was alluding to would no doubt come under the same category?—*A.* Yes.

*Q.* Turning to this question of the sale of goods, do any of these weaving societies sell to the Swadeshi Stores or similar institutions?—*A.* We have just started a store, the *Namdev* Stores, which is a sort of co-operative selling society, but we have not tried the Swadeshi Stores yet.

*Q.* Have you any special difficulties in dealing with such institutions?—*A.* No, except with regard to the remittance of money punctually. It is a small detail and I think we have overcome that by means of cash credits.

*Q.* I understand that the system of cash on delivery of goods would be very helpful from your point of view?—*A.* Oh, yes.

*Q.* Could you make all the things that they want?—*A.* Yes.

*Q.* Have you any organization to help your weavers to sell cloth to members of co-operative credit societies in which there is a fairly steady organized demand?—*A.* We have not.

*Q.* What is your opinion about village tanning as an industry? I am not talking of shoe-making, but tanning. Is it not the case that the village tanner sometimes turns a good hide into bad leather?—*A.* He certainly does.

*Q.* Do you think he is ever going to make good leather except by going into an organized tannery?—*A.* No, I do not think so at present.

*Q.* And would it not be better if he is to do something else?—*A.* I should prefer him to do something else.

*Q.* But you look upon the co-operative societies to bridge over the interval?—*A.* Well, I would like the tanner to go at once. The conditions under which these chamars live are so degrading that they had better go into the factories at once.

*Q.* Are you aware that the village *teli* wastes much oil in his processes?—*A.* Of course I do not know myself. There is a monograph by Mr. Pandit on the subject which says that he does.

*Q.* We have evidence to that effect. It is the waste of oil that is left in the cake which is eaten by the cattle?—*A.* Of course, it is necessarily wasted.

*Q.* You cannot press the whole of it, is that what you mean?

*President.*—Mr. Ewbank did not understand.

*Q.* You mean it might be left in the cake?—*A.* Yes.

*Q.* The British Board of Trade standard is 4 per cent., and if there is any more in the cake it is not useful as manure?—*A.* We have a number of co-operative societies for taking up this cake from *telis* and using it as manure, and they find that the ghani-pressed cake gives better results. They prefer village-pressed cake to that made in mills.

*Mr. C. E. Low.*—*Q.* What does the Agricultural Department say to that, don't they think that it is absolutely wrong?—*A.* They do.

*Q.* Turning to the boot-makers, have you ever found, in view of the character of the boot-makers and their business, that there is scope for something on factory lines? It is a little outside the ordinary co-operative work, but not entirely unconnected: for instance, three or four boot-makers join and take on contracts and so on; would that be outside the scope of your co-operative work?—*A.* I think they could do so. They do it at Poona; they have got a sort of private joint stock shop there.

*Q.* And that is advantageous?—*A.* Oh, yes, they are doing well.

*Q.* You regard that as within the scope of the Director of Industries but not of the Registrar of Co-operative Credit Societies, or would you regard that as within the scope of your functions?—*A.* I should regard all organizations connected with handicrafts, except technical, as in my charge.

*Q.* The business side also?—*A.* Yes.

*Q.* Is that the arrangement between you and the Agricultural Department?—*A.* Yes, except in so far as all my work comes under the Director of Agriculture.

*Q.* As far as your functions go, you are like the Deputy Director of Agriculture?—*A.* Yes, that is the line; the Co-operative Department distributes the seed and yarn or whatever the produce is; we also purchase the raw material.

*Q.* Any question of finding markets?—*A.* I do not know. We have divided our spheres fairly distinctly, and we get along as well as we can.

*Q.* It is rather important to pursue this question; could you explain it fully?—*A.* With regard to finding markets, I may take some concrete instance like cotton. At first it was sold through *dalals*, and then the Agricultural Department advised us to take up the question; we worked with their advice and tried local auctions, financing the growers through co-operative societies with the help of the central co-operative bank. With regard to seed, the Agricultural Department at present grows improved seed. The Co-operative Department undertakes its distribution when so desired.

*Q.* Then merely as a matter of finance, when you are beginning the thing, the question of seed would involve technical knowledge, so the start might be taken by the Agricultural Department?—*A.* Yes.

*Q.* Then is there any other phase of the work which is divided between the two in that way?—*A.* Let us take the supply of artificial manure. At present people are not accustomed to use it. The Agricultural Department has to teach them and for the first three or four years it has to develop the demand and show the people different sort. Then when the people really want manures on a commercial scale, say, 50 tons or 100 tons to start with, we can step in and begin to organize it co-operatively and purchase their cake.

*Q.* You find this division of work and responsibility a satisfactory one?—*A.* I am quite satisfied myself.

*Q.* Have you had any co-operative use of machinery?—*A.* Yes, a good deal. It is growing this year particularly.

*Q.* Cane or pumping?—*A.* Cane crushers, machinery. We bought about 40 Chatanooga and Poona crushers and have distributed them co-operatively.

*Q.* Power or bullock?—*A.* Two power crushers. The rest bullock.

*Q.* Have they been giving good results?—*A.* Yes.

*Q.* At what point would the Agricultural Department begin to divide up the control of the co-operative use of machinery?—*A.* They start depôts; they have depôts all over the country for selling ploughs; when the demand grows, my Department gets small people to buy machines themselves, and they hire them out The thing works perfectly.

*Q*. Then what about seed?—*A*. We are backward in regard to seed.

*Q*. Has anything been done yet in seed distribution?—*A*. We have about 20 societies.

*Q*. It has reached the co-operative stage?—*A*. It is just on the threshold of it.

*Q*. What is your idea of the division of responsibility there?—*A*. Well, the Agricultural Department must find out what sort of seed to recommend and the people must generally accept the recommendation of the Agricultural Department. At first a few people grow it, and other people begin to ask for it. As soon as that is done, we get certified growers to grow seed and send it down to co-operative societies for distribution to members as advances for cash or on loan to be recovered subsequently.

*Q*. What about periodical inspection; do you train men to do it?—*A*. That would be outside a society's functions except at an advanced stage.

*Q*. The Central Provinces societies keep their own men to do that?—*A*. I know they do.

*Q*. Is there any reason why you should not do?—*A*. They work on a 6 per cent. margin; we work on a 2 per cent. margin, so we cannot afford supervisors.

*Q*. Then in the same way, in regard to marketing of cotton, you want certain men to do it with technical knowledge to see that the cotton is not mixed?—*A*. Yes.

*Q*. Do you get your men trained in the Agricultural Department to do it?—*A*. Yes, we have 4 men trained in the Agricultural Department under me on that sort of work.

*Q*. Are they Government servants?—*A*. Yes, Government servants, temporary.

*Q*. What is your idea about a Fisheries Department? Do you think that your scope of action with regard to fishing would be increased and improved if there was a technical department here like what they have in Madras?—*A*. Yes.

*Q*. Apart from the question whether there is a case for a technical department of that kind, supposing Government engaged experts in the industry, would it be in a better position?—*A*. Certainly, Government could not do much less than we are doing. We are doing practically nothing.

*Q*. You know, I expect, that there is fairly active work done in Madras through fishermen's societies by the assistant inspector of fisheries?—*A*. Yes. Here we have only got one, or I think, two, but they are not really doing much.

*Q*. Do you think that if the confidence of the fishing classes could be secured by showing certain technical improvements, societies could be easily formed to improve their condition?—*A*. Oh, yes; if there is a technical department for the industry that will pave the way for an organization to follow.

*Q*. It will create a need for organization, and it will give people confidence in the intentions and possibilities of Government officials?—*A*. Yes.

*Q*. And such organization would help the technical department?—*A*. Yes, it will.

*Q*. Again, you have great difficulty in getting problems worked out for the supply of looms you require: there are different types, and you want to know which is the best fitted for the village weaver; you would be able to get assistance, I suppose, from any of the concerns which are more or less supposed to be devoted to that work?—*A*. I think we have got very little assistance from the Victoria Technical Institute; but recently last year an institute at Bangalore—I forget its name—gave us the greatest possible assistance. As far as we are concerned, we would use that institute. They are different from the Victoria Institute, and are very keen about handicrafts and artisans.

*Q*. How do they take up a problem of that sort, double shuttle attachment for instance? Will you give us a history of the negotiations for working that out as between you and them?—*A*. The Victoria Institute?

*Q*. The Bangalore Institute.—*A*. In certain divisions most of the hand-loom weavers work with two shuttles. We have got single shuttle looms widely accepted at Malegaon which Mr. Pomfret recommended. It is a very good loom, but it is not suited for certain divisions, and the people there would not adopt it. So we asked the Victoria Institute about the double shuttle slays. They would not recommend any; then we got a double shuttle loom from Bangalore.

*Q*. Is it not possible to change the single shuttle?—*A*. It is possible. I sent a man to Bangalore to see the double shuttle that they had in use there, and we bought three from them as samples.

*Q*. Did they invent it themselves?—*A*. I understood that they invented it themselves; they call it the Bangalore loom. We collected a few hundreds of weavers and showed them the double shuttle. They made suggestions as there were some difficulties about it.

and so my assistant took it to a factory at Sholapur and got it remedied. It now works admirably wherever it has been introduced and several hundreds have been sold.

*Q.* What is it going to cost; have you any idea?—*A.* You might ask my assistant (turning to the assistant witness ascertained that it was about 14 rupees).

*Q.* Fourteen rupees for the whole of the loom?—*A.* Together with the dobby Rs. 20.

*Q.* Are you able to form any opinion as to whether these people in Bombay are able to take up the question of remodelling the old looms?—*A.* No, I have to depend upon Bangalore myself.

*Q.* Do you believe that the Victoria Institute could invent a thing of that sort?—*A.* I think they are chiefly concerned with power industries. They serve the requirements of the power mills here; and they are not really interested, as far as I see, in handicrafts.

*Q.* Then there is no distinct department or institution here which is in any way responsible for technical aid to cottage industries?—*A.* No.

*Q.* Turning to the question of industrial surveys, has any industrial survey which you had experience of helped to induce people to put money into any industry or anybody to start any industry?—*A.* Yes, I remember two or three small power mills, one at Malegaon, and one at Sholapur, started partly on the information given by Mr. Mehta in his survey.

*Q.* What sort of power do they use?—*A.* Power engines.

*Q.* And some of these are succeeding?—*A.* Oh, yes.

*Q.* The men who are employed there, are they, in a better or worse position than the weaver in his own house?—*A.* I have not been into that question.

*Q.* In the last part of your evidence you make a point about the necessity of having a man as Director of Village Industries, and you also say that the appointment of a Director of Power Industries is a question of Imperial policy which will no doubt be largely controlled by the Government of India. But supposing the local Director of Industries had only the smaller power industries, would it be possible for him also to take up cottage industries provided he were given a special man for that purpose, say, a Deputy Director for cottage industries just as you have got the Deputy Director of Agriculture.—*A.* They could be run together, but I do not think it would be a sound way of really preserving the cottage industries which are based on quite a different idea. A Director of Industries will be working towards the development of power industries. In this case you are trying to assist the small cottage workmen.

*Q.* You mean to say these expert Government officers would carry out their work on lines totally inconsistent with your ideals?—*A.* Yes. You want a man who would know something about handicrafts and village conditions. It is illogical to expect men engaged in promoting big industries to seek to improve the condition of the village artisans at all.

*Q.* But the Agricultural Department in addition to a considerable knowledge of agriculture may be expected to show an appreciation of Indian village psychology?—*A.* That is true.

*Q.* Then probably some knowledge of chemistry would be required, you want chemists, don't you?—*A.* All that sort of knowledge would be absolutely necessary, I should say, in the technical institute for advising on particular problems, but the Director of Cottage Industries himself should be an administrative man, to get hold of people, and to find out what their difficulties are, and to help them in working up their own industries.

*Q.* That is to say, you would run it with a man with local knowledge, with a general economic knowledge of his province, and any technical problems will be worked out for him by an organization for which he would necessarily be responsible officially?—*A.* That would be the ideal method, but the technical organization ought not to be under him.

*Q.* You said something about the Institute of Science in Bangalore: did you find any difficulty in getting that sort of problem taken up by specialists in the technical institute here?—*A.* I have found that difficulty.

*Q.* How would you get over that? Would you have different departments entirely separate?—*A.* I would have a central institute under Government, so that one could simply refer to Government and say that here is a scientific or technical difficulty. They would instruct the Institute to investigate it and advise one as to the true solution.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* Are your weavers generally educated? What class of weavers have you got; are they Mussalmans and Hindus of the higher or lower type?—*A.* Lower type of course, and there are some Mussalmans as well as Hindus.

*Q.* You have got all classes of people, is it not?—*A.* Yes.

*Q.* And their difficulty is that the sowcars give them only a living wage when they work on their looms and the profits go to the sowcars, is it not so?—*A.* Yes, the sowcars at Malegaon are Mahomedan weavers themselves.

*Q*. Haven't they a co-operative society?—*A*. No, not at Mâlegaon; they have a big weaving school.

*Q*. But they have got their own association. They jointly buy yarn from one of the Bombay mills at a contract rate. Have they got a company of their own?—*A*. We have got some Mahomedan sowcars to help our school.

*Q*. When was that school started?—*A*. It has stopped recently.

*Q*. Is it going to recommence again? Will not a co-operative society work there very well?—*A*. Yes.

*Q*. There the weavers are unable personally to buy yarn from Bombay, is it not so?—*A*. Yes.

*Q*. And the remedy you propose is to purchase yarn in large quantities at wholesale rates from the mills, for advancing to members and to recover the price when the cloth is sold?—*A*. Yes.

*Q*. You know, I suppose, that they buy different kinds of yarn, sometimes in very small quantities; generally in Bombay.—*A*. We buy from the broker, not from the mills. We can't buy very largely. We buy two or three bales at one time from the local market. From our point of view that is a big purchase.

*Q*. Could you buy different kinds in one or two bales?—*A*. A single society does not usually use very many kinds.

*Q*. As Mr. Low asked you, do you think that if a co-operative society or the Government takes up an agency of buying and selling cloth when there is a favourable market this system could always be worked at a profit? Suppose Government takes cloth and sells it at a favourable rate, and suppose the market is depressed and the demand comes in, say, July or August and the goods are ready in January or February, then Government should finance, take up those goods, and sell them for the co-operative society at a higher rate. Is that your proposal?—*A*. I would not recommend that. Personally I would go on as we do at present until there is enough capital for co-operative societies to take the business in hand.

*Q*. But at present do you think the co-operative central bank can finance these weaving societies?—*A*. Not safely except to a very small extent.

*Q*. You cannot recommend that?—*A*. No.

*Q*. You know that the Swadeshi Stores in Bombay are also purchasing cloth?—*A*. I do not know, Mr. Low was referring to that.

*Q*. They do purchase; we asked Sir Vithaldas here and he said that they did purchase?—*A*. I will make inquiries about it. I will get into touch with them and see what I can arrange.

*Q*. They are not registered under the Co-operative Societies Act?—*A*. No.

*Q*. Do you think if more schools like the Malegaon school are established in the different weaving centres, that will make the weaver more efficient?—*A*. Yes.

*Q*. Do you think that that school has done good work?—*A*. Yes, it has done good work.

*Q*. If you have no objection, would you tell us why it was stopped?—*A*. I think it had done practically everything that we knew of in the way of introducing new methods, with the result that the fly-shuttle looms employed there had increased from 200 to about 1,500. At the present time with regard to two-shuttle slays we are showing demonstrations there. Unless we have got something more to teach, it is no good going on with that school.

*Q*. You closed down the school after having demonstrations shown to the people?—*A*. Yes.

*Q*. You don't need it now, and therefore you have closed it down?—*A*. Yes.

*President*.—*Q*. Have you a peripatetic school?—*A*. After a few years' demonstration at one place, we close it and send it somewhere else.

*Hon'ble Sir Fazulbhoy Currimbhoy*.—*Q*. Then about fishing. Kolis can form societies, is it not; they are very rich in Bombay?—*A*. Yes.

*Q*. But they are working individually and fighting against each other?—*A*. There is no reason if we had time to go into the thing, why we could not get these kolis to form co-operative societies.

*Q*. Then you suggest a survey of indigenous dyes.—*A*. It is very important.

*Q*. Do you think that can be successfully done?—*A*. We ought to show the way. Dyes, like indigo, everybody knows, but the other dyes hardly any weavers know anything about.

*Q*. But at present some local dyers are using different kinds of dyes?—*A*. In a few centres like Sholapur.

*Q*. For cotton or silk?—*A*. Cotton and silk, all dyes.

*Q*. Then you want for cottage industries a separate Director of Industries. Do you think an assistant under the Director of Industries would do?—*A*. I think an assistant would be better than nothing, but I certainly think they ought to be separate.

*Q*. What other cottage industries can be developed by the co-operative movement except these?—*A*. All industries connected with agriculture, I mean the purchase of raw material and the distribution of agricultural products. I think practically all of these are capable of co-operative organization.

*Q*. Do you think if the co-operative societies are financially strong, there will be any difficulty about financing those concerns in this Presidency?—*A*. You mean such as societies for purchasing yarn and so forth?

*Q*. If these weaving societies and tanning societies are developed, will there be any difficulty in financing these societies?—*A*. The only thing is that we must be more cautious here than with agricultural societies because there is land at the back of the agriculturist. But as soon as you have seen that these people are honest and straightforward in paying back the loans, and that they are not factious you may finance them.

*Q*. When they cannot get money from the village people, the unions can start them, can't they?—*A*. If it is unlimited liability the unions can, not if it is limited.

*Q*. The difficulty is they have no societies?—*A*. We collected about 1½ lakhs of rupees for these 31 weaving societies, and it is practically all local money, with no financing from outside.

*Q*. Are they working very successfully?—*A*. I think they pay 5 or 6 per cent.

*Q*. Then you say on page 28, " When the new two-shuttle slays are ready and the position of the hand-loom weavers again improves after the present depression, etc." Do you think at the present time the weavers' position has improved?—*A*. That was written a year ago. The position has greatly improved since.

*Mr. G. A. Thomas*.—*Q*. How do you propose to educate the leather workers; do you propose special schools to educate them?—*A*. No, I should suggest allowing them to attend the ordinary schools.

*Q*. How do you propose to educate them in improved technical processes? What kind of organization do you think would be suitable for improving the technical processes of the leather workers? Would it not be extremely difficult?—*A*. I would rather that the local tanners go to tanneries at once.

*Q*. That is because, as you say later on, they are not sober and honest?—*A*. I don't think you could improve them in these respects.

*Q*. You mean no organization could make them change their habits?—*A*. No, not in view of their present position in the caste system.

*Q*. Could you tell us what has been the effect of war on weavers? I think it has varied in different districts?—*A*. Yes, it has. At the beginning of the war in practically all the districts in the Presidency, the hand-loom weavers had the greatest possible difficulties because of the rise in the price of dyes, and also because the price of English yarn went up. The weavers mostly use imported yarn. That depression was much worse in Dharwar and Belgaum districts than elsewhere. Since then there has been a great deal of recovery.

*Q*. You got Rs. 7,500 from the Imperial War Relief Fund which was supplemented by a further sum of like amount in the next year which you have distributed in the form of rebates?—*A*. Yes, part of it was distributed in the form of rebates.

*Q*. Is it not the fact that in some of the districts the weavers have taken to other forms of labour, that is, they are becoming coolies?—*A*. Yes, owing to the war.

*Q*. After the war, when the price of dyed yarn becomes less, will they revert to their old weaving?—*A*. I should think they probably would.

*Q*. Do you think that even if better wages are offered elsewhere they would still return to their weaving?—*A*. I am inclined to think that many would.

*Q*. In recent years the output of hand-loom weavers has been on the increase, has it not?—*A*. I do not know. I do not think that it has declined.

*Mr. C. E. Low*.—*Q*. The figures of production of yarn in cotton mills show an increase: the inference is that the weavers are using more?—*A*. It is not necessarily so. Some English yarn is used in mills. Now that that is stopped, the increase in output may be utilized by the mills, not the weavers.

*Q*. In your opinion are the power weaving mills ever likely absolutely to oust or extinguish the indigenous weaver?—*A*. I do not think they will completely extinguish him if he confines himself to silks and solid border cloths. The mills can never get him out of that as long as social habits remain as they are. Silk saris and solid border cloths of certain patterns will continue.

*Mr. G. A. Thomas.*—*Q*. You said that the weavers have taken to other forms of labour. You refer in paragraph 5 under Technical aid to industries in your note to the Victoria Jubilee Technical Institute. I believe that some years ago a non-recurring grant was given to the Institute for two purposes; one was to make experiments in improved weaving, what has been the result of that, do you know?—*A*. There has been no experiment so far as I know.

*Q*. Do you know of any reason for that?—*A*. I do not know the reason, but I do not think as a matter of fact that the controlling agency in the Victoria Jubilee are particularly interested in this sort of work. I put it down to that.

*Q*. And the second object of this step was to teach the sons of weavers, take them through a three years' course, to start a school and confine it to sons of weavers. As a matter of fact it was found that many of the boys went away without finishing their course, was that not the case?—*A*. Some of them went away after the first year.

*Q*. What use do they make of the training they get at the school?—*A*. Some of them have come to my Department as teachers.

*Q*. Do you think a school of this sort would serve a useful purpose in turning out weaving teachers?—*A*. No, I do not think so; they do not stick to it. I have tried some of them, and they have all gone away.

*Q*. How do you get teachers for your weaving schools, mainly from the schools?—*A*. I personally prefer men trained practically in good karkanas. They are most intelligent and industrious.

*Q*. Referring again to your proposal about the Director of Village Industries, you think I suppose that the interests of power industries and of the hand industries are so antagonistic that it is impossible to combine the control and direction of them in one man?—*A*. Yes, that is so.

*Q*. Would you say antagonistic?—*A*. Yes, I would.

*Q*. Not merely inconsistent?—*A*. The mills want more labour and they would apply to the Director of Industries to assist them. Naturally he would turn all the labour that he can secure into the mills.

*Q*. The Director of Power Industries and the Director of Cottage Industries would each be trying to draw men away from the other?—*A*. Yes.

*Q*. So their interests would be antagonistic?—*A*. Yes. I think if you are going to help the village industries as well as power industries, the direction should not be vested in the same person.

*Q*. The interests of the two are inconsistent or conflicting, and you think the same man could not hold the balance even between the two?—*A*. Well, the Director of Industries would probably be stationed in Bombay, and I think the pressure of opinion in Bombay would be entirely in favour of the power-mills. Public opinion and the newspapers would be in favour of power. Therefore I am afraid that he would not hold the balance even.

*Q*. You mean he would give way to the pressure of commercial interests in Bombay?—*A*. Not exactly give way; they will weigh with him too much.

*Q*. If such an officer as a Development Commissioner exists, would your Director of Cottage Industries be under him, or would he be a provincial officer?—*A*. He would be a provincial officer entirely.

*Q*. Would he not be under the local Development Commissioner?—*A*. Yes, he would be.

*Q*. If both these were under the Development Commissioner, would he not be swayed by the same conflicting interests? If in Bombay, would he not be swayed by the press and the industrial interests in Bombay? It comes to the same thing; both these things are dealt with by the Development Commissioner or both by the Director?—*A*. I do not think it is quite the same thing as the Development Commissioner would not be an Executive Officer.

*Q*. The head of the Department would have two branches under his direct control, you have really the same difficulty about conflict of interests?—*A*. The Development Commissioner would be a controlling officer, whereas the provincial men would have executive functions; his functions would only be co-ordination.

*Q*. Is there much co-ordination between the Director of Industries and the Director of Agriculture? How can he co-ordinate the work of power industries and of village industries when the two interests are inconsistent?—*A*. You can lay down distinctions between the lines of activity of each Department; you can weigh the arguments put forward by one officer and weigh the arguments put forward by another and judge whose case is stronger.

The executive officers would naturally take up vigorously the line which they represent and in which they are interested.

*Q*. But if you place the Director of Power Industries under the Development Commissioner, would that not be also inconsistent? Would it not be better to have a distinct Development Commissioner for agriculture and village industries?—*A*. I think perhaps you are right.

*Sir F. H. Stewart.*—*Q*. Supposing instead of having a separate Director of Cottage Industries as you propose, you had only one officer but assisted by a committee or advisory board, that committee having power to appoint sub-committees to deal with handicrafts in particular places; would that not be sufficient?—*A*. If such committees would not be executive, there would be the same difficulty, namely, the Director of Industries would be the only executive officer both for power industries and for cottage industries.

*Q*. You would rather have a Director of Industries specifically for the purpose of helping these smaller industries than an advisory board?—*A*. Yes. From my experience I am very much opposed to administrative action by committees instead of by an individual, unless it is absolutely necessary. The personnel for such advisory boards in handicrafts would rarely be available.

*Q*. It seems to me that this would add greatly to the expense. Would it not?—*A*. I am really not competent to offer an opinion about development of industries. I can only say that there are more people engaged in handicrafts than in power mills.

*President.*—*Q*. In saying that the Director of Power Industries would be under the Government of India, you mean that he would not be a local Government official?—*A*. Yes.

*Q*. You would not therefore have a separate one for each province?—*A*. I know really nothing about power industries.

*Q*. You are really the Director of village industries just now, that is, the Registrar of Co-operative Societies is in the matter of village industries a kind of Director of Industries?—*A*. Yes.

*Q*. You couldn't possibly do much in that way?—*A*. The reason why we have not progressed much is that it is hard to find time for it. Every committee that enquires into industrial matters relating to village industries ends by recommending a co-operative society to start with; and the problems are too numerous and difficult for a small staff.

*Mr. C. E. Low.*—*Q*. Is there any large feature of the work of improving village industries in which co-operation is quite unconcerned?—*A*. All the technical improvements.

*Q*. Is there anything else beyond that? Do you think co-operation is quite unconcerned in those technical improvements?—*A*. A demonstration officer under the co-operative movement would be of great value, to demonstrate the best method of flaying, for instance.

*Q*. I suppose education also is a subject for co-operation?—*A*. Yes.

*Q*. The number of subjects which are of no use for co-operative work is relatively not so very large? Is that so?—*A*. I agree.

*Q*. How about the case of isolated workers like the village blacksmith or the carpenter?—*A*. I do not think one can do much for him on co-operative lines.

*Sir F. H. Stewart.*—*Q*. Generally the *telis* or whatever they may be are not in a position to form village co-operative societies?—*A*. I am not very much in favour of a separate society for them except in special cases.

*Q*. But amongst the weavers and tanners they can form societies?—*A*. I do not think the tanners can because they cannot manage societies themselves. They always fail. The weavers' question is separate.

*Q*. We have had evidence to show that co-operative societies could not succeed unless some prominent outside person always took a personal interest; what is your experience?—*A*. No. Such men are wanted. We have got merchants, bankers and so forth who have taken interest in this Presidency, and the movement goes on all right.

*Q*. The tendency among these men is that they waste money on marriages and ceremonies. Do you find that the co-operative system has distinctly elevated them? Do the members of these societies really become more thrifty and learn the value of money?—*A*. They do not nowadays spend so much on those things in places where really good societies exist.

*Q*. So they do show some signs of thrift?—*A*. Oh, yes.

(*Witness here gave confidential evidence about a certain loom.*)

## WITNESS No. 8

### MR. Y. G. PANDIT, *Oil Expert, Bombay.*

### WRITTEN EVIDENCE.

Ever since my return from America, where I specialized in the oil industry, I have been connected with several oil mills in the capacity of Chairman of the Board of Directors or expert advisor or the like. As such I have been often obliged to find funds for floating these concerns; and it has been my uniform experience that the Indian public is very chary in investing in new concerns until the profitability of those concerns is established beyond the possibility of a doubt. The result is that the bulk of the funds in the first instance is obtained from one's own capital and that of one's friends' who are usually large capitalists themselves. When the industry is proved to be a success these capitalists realize their original investment with substantial profits leaving the man of smaller savings to take their place. It frequently happens that with the disappearance of large capitalists the management also suffers unless the original starter of the industry himself keeps up all his interests in the concern. This might account to a large extent for the failures of new industrial concerns as well as for the rather limited confidence which the Indian public outside the great industrial centres of Bombay and Calcutta have in new industrial enterprises. The difficulty then for financing new industrial concerns is not so much the absolute lack of floating capital in India as the want of the average investor in India with the rights and liabilities of a shareholder in a joint stock company. If the indigenous capital, especially from the man of small savings, is to be attracted for investment in industrial concerns, it is my firm belief that the Indian public should be familiarised with the joint stock principle in general. Better and wider advertising facilities also serve to spread a greater knowledge of the principle to attract more capital for the end in view. But I think the best remedy for removing the distrust, if any, of the public towards industrial concerns would be to have investment agencies which would familiarise the public with the different values of different concerns and which could guide the public, if need be, to get the best return for the investment. As regards the attraction of foreign capital I am personally not against it, but to have foreign capital means also foreign management and control of the industry and it would not help to foster that kind of industrial development in India which we have in view.

As regards Government aid to industrial enterprises I cannot approve of direct financial assistance in any shape or form by the Government to any industry conducted by private individuals. Unless and until Government take up the whole industry by themselves and conduct it as they conduct their railways exclusively under the public ownership and public control, I would advocate no sort of financial assistance by the Government. For financial assistance to any industry by Government would necessarily involve public control of that industry in the interest as much of the industry itself as of the public at large; and the constant interference of the officials in the management of an industry would be sure to be resented both by the managers of the industry in question and also by the officials concerned. As regards the other means suggested for giving financial assistance to industrial enterprises the opinion I have already expressed with regard to financial assistance would hold with aggregate force with regard to money grants-in-aid.

Bounties and subsidies may be given with benefit to a special industry, but such a grant would depend very much on the particular circumstances of each industry, and I should hesitate to lay down in general rules for the grant of such bounty to a particular industry except that public assistance of this description should be granted to any industry with the utmost caution. As regards large scale industries of national importance, such as the iron and steel industry for example, or shipping concerns or insurance concerns, guaranteed dividends for a limited period may serve a very useful purpose; but in guaranteeing minimum dividends the rule must always be observed that the industry so favoured should be one of national importance and should be limited to one or two large concerns for the whole of India. It would, of course, be a salutary rule for the industries themselves, if the proviso be added that the money spent, if any, by the Government in making good their guarantee should be refunded by the industry when it is able to stand on its own legs. The Government control in all such cases is unaffordable, and I do not see how any one can resent it in the case of industries which have their dividends guaranteed by Government. As regards these concerns with guaranteed dividends, the best methods of public control would be to secure public representation on the Board of Directors of such concerns as well as a certain amount of publicity of account and audit of same by Government officers. I do not think that Government can or ought to be expected to render any financial help without control, nor can it give financial assistance in starting any new industry in any direct manner except by the provision of allowing building sites for factories rented at cheaper rates or in the matter of enforcing concession rates for the provision of water and light in cases where these commodities have to be supplied by public bodies like municipalities and like concerns.

*Loans from public funds to particular industries.*—No such loan should be advanced to any industry as such or any industrial concern which would not carry interest at the prevailing market rate.

Supply of machinery and plant on hire purchase system would, of course, be an excellent method of assistance in all cases where the entrepreneur finds it difficult to procure for himself the latest machinery and the best equipment for the concern he is going to start. It must be remembered that such an assistance is apt to be injurious to other competitors and should not be given unless the industries proposed to be started are entirely new and the individual proposing to start has a special aptitude for running that concern.

Preferential purchase by Government of products for a given period is in the same class as guaranteeing dividends and the views expressed above in that behalf hold true in this case as well.

As regards the last methods specified, the exemption, I believe, for a limited period of the profits of new enterprises from income-tax would be an excellent means of assisting industries; and the period may even be extended in proportion as the industry becomes of a more and more national importance. But I cannot hold the same opinion with regard to the latter part of the same method; the exemption altogether from all taxation of any article used in an industry may involve a tariff policy, which, while giving some slight advantages to some particular industries, may yet hamper the industrial development of the country in general. Though not stated in these questions, I think that the most powerful stimulus to the industrial development of India in general is to be found in a revision of the tariff policy of the Government of India and as such a revision would involve imposition of new taxes. I cannot accept the suggestion containing the latter part of No. 8-A.

Financing Agencie

As regards special financing agencies for guaranteeing funds to set afloat new industries I think there is the utmost need for a special industrial bank for the whole of India. As the subject is a very technical one, I hereby submit a pamphlet* containing a well thought out scheme for an industrial bank, its finance, its management, its working by Messrs. Tannan and Shah. I am bound to mention here that the formation of an industrial bank either for the whole of India or for the various Indian provinces is by far the best solution of the problem of creating some mechanism by which financial assistance can be rendered to industries. A private bank can render the kind of help which it is difficult to obtain from public funds. It can look into the prospects of any languishing industry, which shows some signs of prosperity if financial help is given in time. An organisation like this, like the industrial banks operating from the Presidency towns, can be helped by an advisory board with Government nominees on it and its work can be easily co-related with the educational propaganda of the co-operative and industrial departments of the province. There is, I believe, a very great field of work for the department in this province under the Director of Co-operative Societies in the direction of educating these small capitalists in the muffasal by means of vernacular pamphlets in such a manner that he comes to believe in the investment of his capital in local small industries. Supposing a small syndicate is formed locally the industrial bank may be able to finance it with greater security.

Technical aid.

The provision of technical aid to new industrial concerns by the Government has so far been almost completely neglected in India. Considering that all forms of important modern industries are impossible to conduct profitably without the aid of scientific research the benefits of such assistance need hardly be detailed. At the present time, however, I can say from personal experience that the oil industry of this country has gained immensely by the appointment of an expert by the Government of Bombay for advising on the working of oil mills, etc., and I think it is of the utmost importance that such be provided in future for all the leading industries. The opinion of Government experts should be placed freely at the disposal of private firms or companies so far as their advice on the general features of the industry in question is concerned. A special remuneration coupled with the additional control by an *ex-officio* Directorship may be provided for in any case where a new concern requires constant assistance from the Government expert in the actual working of the concern. In order that knowledge and experience of Government experts be freely available to the public, it is necessary that the results of their research, inspection and observation should be published periodically and should be distributed at very little cost among the public. As regards the publication of the results of researches made by Government paid experts while attached to a private business, I think such a publication should not be allowed if it would involve the loss of a trade secret; but withholding from publication of such researches at the original solicitation of the industry in question on the ground of their loss of profits should be made conditional upon their paying a special tax in the nature of a patent fee to Government. I further advocate the establishment of a big institute for the

Publication of res
of researches.

---

*Not printed.

[illegible]ological Insti-

conduct of scientific experiments and research in all departments of science at some [illegible] enient centre at the expense and under the control of the Government of India. [illegible] nstitution should, of course, be equipped with the best laboratory and appliances necessary or the conduct of research and should be started by the best men available for our departments, if necessary from outside India, pending the growth of a sufficient number of ndians to take their place. Such an institution should moreover periodically submit a eport of its working made freely available to the public, and should also carry on the ublication of magazines from our departments containing the latest research or information relative to that department.

Trade Representatives.

As regards public assistance in marketing products I think the one method, so far relatively ignored in India, is the establishment of trade representatives in the different countries with which India habitually trades. It should be the duty of these trade representatives to study closely the nature and volume of the trade of India with the countries they are stationed in; and to discover and suggest new directions in which the trade can be increased to the benefit of India. They should further submit their report of a nature similar to the consular reports now received by the Government of several western countries and framed on a like basis.

Imperial Department of Industries.

As regards other agencies mentioned in this above, I think the value of public exhibitions held from time to time in financing centres cannot be exaggerated. For the supervision and development of industries in India we have at present hardly any organisation worth the name specially appointed to deal with the subject. In my opinion there should be formed a Department of Industries separate from the present Commerce and Industries Department of the Government of India, and entrusted with the care of industrial development in India including the general tariff policy of the Government of India, public assistance to several industries and public control of the same. This department may be presided over by a specially qualified Government official. In order that the department should not lapse into the natural vices of public departments, it is necessary to the department to be advised by a board of non-officials. The advisors should be drawn from different provinces of India, and no departure in the general industrial policy of the Government of India as well as in financial responsibilities by the Government with regard to any industry should be undertaken by the Government without the concurrence of a majority of the board. The members of the board need not be experts or specially interested in certain industries, and may preferably be the ordinary commercial leaders of the different provinces. Under the Department of Industries of the Government of India there may also be Directors of Industries for the several provinces each its own; and within the limits of the province the local director of industries should be given full liberty of action under the general rules laid down by the central department. The Department of Industry, in my opinion, ought to be centralised on the analogy of the present Finance Department, and the local directors in different provinces should work on the same lines as the present Accountants General for the different provinces. It may be that by the lapse of time our increasing experience of the working of this department as well as its local branches would suggest a greater latitude of powers to the local directors and the present Accountants General in charge. But in my opinion the centralisation of the department would be invaluable if we want the industries of India to develop all round and if we would not have local jealousies and the different provinces standing in the way of all round development of the common mother country.

As regards the organization of technical and scientific department of Government I have already given above my views regarding the establishment of a central scientific institute for the conduct of scientific research. But in answer to questions 78 and 79 I have to state that there are no libraries for consulting works of reference of a highly technical character in any part of India, and I think, therefore, the establishment of such libraries in important industrial places would be indispensable.

College of Commerce.

As regards the establishment of a college of commerce we have in this presidency since the last three years a college of commerce, but I cannot say that the present working of this college is all that can be desired. If commercial education is to be useful in the industrial departments of the country, it is not enough for such a college merely to give rise to one more degree in the University. It must be so organized as to make the instruction it imparts available to all who desire it, that is, to the men actually engaged in the active pursuit of industries. The present college of commerce in Bombay has not yet shown any results at all equal to such an ideal. The type of men attracted at the present time is hardly distinguishable from the ordinary undergraduates of any of the other colleges, and I think I am not wrong in saying that the guiding motive for most of them is to obtain a new degree which would facilitate their advent in public offices in fairly well paid posts. I quite recognize the impossibility of dissociating the minds of all the students in the college of commerce from the lures of public service. But I would strongly recommend that commercial education in a specially equipped college of commerce would not achieve its ideal [illegible] is [illegible] engaged in commerce. [illegible] of view [illegible] recommendation that I feel myself called upon to make [illegible] hours of such a college of commerce should be such as would encourage men actively engaged in industry and commerce to attend their classes early morning or late afternoon hours. Moreover, it should not be necessary for all the students joining such a college to take the [illegible] course qualifying them for the degree. The best and most effective method, minimising their lure of the degree, would be to throw open special courses of studies with pecial diplomas at the termination of the courses, so that the individuals who avail themelves of such alternatives would choose such courses as would directly help them in improvng their existing position. The lectures in such a college also should be delivered, if ossible, by men themselves engaged in business, though I quite recognize and regret that uch a type of men is very rare in this country.

With regard to the organization for the collection and distribution of commercial ntelligence I have already communicated my views above, and I repeat here that the stablishment of periodicals by the central scientific institute and the publication of reports f trade representatives, together with the periodicals published by the various departments f such an institute, would be great aids in the development of industries in India.

(*Mr. Pandit did not give oral evidence.*)

---

## WITNESS No. 355.

## KARACHI CHAMBER OF COMMERCE, *Karachi*.

*Karachi Chamber of Commerce.*

### WRITTEN EVIDENCE.

**Capital.**

This Chamber of Commerce has had no experience in raising capital, but for sound enterrises capital has been obtained by local efforts without great difficulty by several of its embers.

**Government assistance.**

We are generally averse to Government assistance for ordinary commercial enterprises.

**Pioneer factories.**

There are no factories of this nature in Sind and we are not in favour of Government ndertaking work of this nature which we think can be more advantageously left to private nterprise.

**Technical aid in general and surveys for industrial purposes.**

We are unaware of any industry in Sind which at present requires technical aid from Government, but think the services of a mining expert to carry out prospecting work might e advantageous to the province.

**Commercial museums, sale agencies and exhibitions.**

In the present comparatively undeveloped state of the province we do not think that any f these methods would have much commercial advantage, although at some future time they night be worthy of consideration.

**Trade representatives.**

In the absence of any indication of what "Trade Representatives" are expected to do, e have difficulty in answering this question.

**Government patronage.**

We think Government should do every thing possible to increase the purchase in India f manufactured articles manufactured in India, instead of obtaining such articles through ne India Office.

**Land policy.**

So far as we are aware, no difficulty has been experienced in this province in acquiring from Government any land required for industrial purposes. The general experience has been that Government has always been willing to assist, as far as possible, in the matter of land required or industrial purposes.

### *Organization of Technical and Scientific Departments of Government.*

We are unable to make any special recommendations in reply to the questions asked under his section, but think, as previously stated, that the assistance of Government experts in onnection with mining and prospecting work would be of advantage.

### *Government organization for the collection and distribution of commercial intelligence.*

We consider that the statistical information at present supplied by Government meets he requirements of the commercial community.

Ordinarily Chambers of Commerce will ask, when necessity arises, for any additional nformation required to be supplied.

**Certificates of quality.** We do not think, so far as the trade of this province is concerned, that certificate quality are called for.

**Trade marks and trade names.** The present Merchandise Marks Act appears to give all the protection necessary to trade in India.

**Roads, railways and waterways.** It is desirable that railway and road facilities should be extended in this province, but the present time when Government are themselves pulling up railways for war purposes seems unnecessary to make any recommendations.

**Shipping freights.** In this matter also owing to abnormal conditions at present existing because of the wa we are unable to make any suggestions.

**Hydro-electric power surveys and the Electricity Act.** We understand that an Association has, within the last year or so, been formed in Calcutt called "The Electric Supply and Traction Federation of India" with representatives all ove India, and that this Association has been active in pointing out any omissions or defects in th Electricity Act. Any criticisms regarding the working of the Act would in the ordinary cours of things be represented to the Association by electrical concerns, and it is hardly necessar for the Chamber of Commerce to offer any separate criticism.

*(Oral evidence was not given by any representative of the Karachi Chamber of Commerce.*

**Bombay Advisory Committee.**

WITNESS NO. 356.

## BOMBAY ADVISORY COMMITTEE.

### WRITTEN EVIDENCE.

### SECTION I.

*Financial Aid to Industrial Enterprises.*

We are of the opinion that the shyness so often attributed to capital in India does nc exist to a marked extent in Bombay City and probably not in Bombay Presidency. It is ou experience that money is very readily forthcoming for any industrial enterprise under know conditions, backed by the names of prominent capitalists. There is no special class c investors. Money for industrial purposes comes from the general public, including sma investors in the larger mofussil cities, who are attracted by the prospects of a high rate c interest and by the expectation of their shares rising in value. Industrial enterprises, howeve which are not supported by well known business men and of which the conditions are not know do not attract sufficient capital and their promoters have not got facilities for raising the capita required, unless they have access to approved capitalists. The result is that a very larg number of the smaller industries have failed from under-capitalization. Not only do the promoters make no provision for a working capital but in many cases the necessary capit is not even subscribed for the purchase of all the essential plant and equipment. The def ciency is made good by loans, mortgages, fixed deposits and similar means with the resul that unless the concern makes very rapid profits, it is over-weighted from the outset and canno tide over a period of sterility.

2. In our opinion it is most important that Government should adopt a liberal and practical policy of financial assistance to indigenous industries in the earlier stages of their existenc We are not, however, prepared to express any decided opinion as to the form which such assistance should take. The circumstances of different industries are so diverse that a form c assistance that might benefit one might be of little or no use to another. We have, howeve no hesitation in stating that very material benefit would be derived by most industries fror a system of guaranteed Government purchase of their products for a fixed term of year When Government give financial assistance, Government should have as much control as i necessary to safeguard their interests without unduly interfering with the management of th industrial concern. In some cases it might be desirable even to insist upon the appointment of a Government nominee on the Board of Directors, but we strongly deprecate an proposal to make such a director an invariable sequel to a financial grant in any form an consider that in ordinary cases it would be sufficient to insist upon an approved audit, including a careful check of prices paid for machinery and raw materials, etc., and an inspection c books, buildings and work by Government officials at any time. Nor do we favour the ide of exemption from income tax on profits as a form of Government assistance but think tha ertain reductions of or exemption from local taxation, as, for example, tolls and termin axes, might prove of value. We also think that whole or partial exemption from impor luty might be allowed in special cases, as, for instance, in the case of raw material importe or the manufacture in India of articles, which are entitled to exemption from or reduction o luty when imported for certain purposes, *e.g.*, mill-stores.

3. We are, with one or two dissentients, opposed to any system of State-pioneered indus ries. We consider that this is not the duty of Government and that Government are no apable of pioneering industries on commercial lines. It is thought that if Government supph

expert advice and expert information, make preliminary local inquiries and give financial and other assistance the necessary capital should be forthcoming from the public for any industry that shows a reasonable promise of success. If, in spite of this assistance, private enterprise still held aloof, Government would probably be wise to leave the industry severely alone. If, however, the policy of pioneering industries should ever be adopted by Government, we think that they should be handed over to private capitalists or companies, as soon as they had fulfilled their purpose. We can think of no case in which a pioneer factory should become a permanent Government enterprise.

4. The co-operative movement has not yet made much impression upon Indian industries, but several societies have been established in this Presidency in connection with handloom weaving, one of the chief objects of which is the supply of yarn to members and the retail of their manufactured cloth, but progress is necessarily slow in dealing with a very backward class addicted to drinking and unaccustomed to thrift. A few other cottage industries, such as leather, oil-pressing, carpentry and pottery, may in the course of time benefit by co-operation, but this is a development which cannot be forced.

5. We are of the opinion that there should be no limitations on Government aid to a new enterprise on the ground of its competing with an established external trade, whether within or without the British Empire, provided that Government are satisfied that there is a good prospect of the enterprise becoming self-supporting within a reasonable time. When, on the other hand, there is or will be competition with existing or new private enterprises in India, we think that certain limitations should be imposed, *viz.*—

(i) The same assistance that is given to one enterprise should be given, if asked for, to all other enterprises *ejusdem generis* that satisfy certain conditions.

(ii) In granting assistance, Government should ordinarily give preference to an existing enterprise rather than to a new one, provided that the existing enterprise comes up to a certain standard to be set up by Government.

(iii) When any concession, other than financial assistance, is given to a new enterprise, it should at the same time be offered to all existing enterprises *ejusdem generis* satisfying certain conditions.

6. As regards the question of financing agency, we favour the establishment of a central industrial bank or similar organization with a large capital and numerous branches, designed to afford financial support to industries for longer periods and on less restricted security than is within the power or practice of existing banks. Such a bank would probably require a measure of Government support, but should not be brought under rigid Government control. Legislation appears to be necessary to prevent abuse of the word 'bank'.

## SECTION II.

### *Technical Aid to Industries.*

7. There is no elaborate official technical or scientific organization in the Bombay Presidency, although a Committee of Direction for Technical Education has recently been appointed by Government. Of the three existing Government Institutions dealing with technical and scientific education, the College of Engineering at Poona has only just opened its engineering laboratory and has not had time to undertake research work. The J. J. School of Art at Bombay has a highly developed pottery department under a well trained expert, which has carried out extensive investigations and undertaken many analyses of raw material. This department, which is about to issue a report describing its work, is in a position to give very material assistance towards the development of the pottery industry in India. The Victoria Jubilee Technical Institute at Bombay has not been of very great direct assistance hitherto to industries but has trained a large number of mechanics, who have no difficulty in finding employment. It has also made considerable progress in weaving, but the classes for weavers maintained by it have not proved a success and an alteration of the curriculum is under consideration. Government have also from time to time deputed officers to write monographs on particular industries and 14 have been written on the marginally noted subjects, but these are of more academic interest than practical utility. Three special reports have also been prepared at the orders of Government by experts on the leather, oil-pressing and handloom weaving industries, but it is believed that these reports have not been of much use, partly owing to the fact that no official organization exists either to make them properly known or to turn their lessons to practical use. It cannot therefore be said that the Local Government has given much technical or scientific aid to Indian industries, in this

(1) Carpet Making.
(2) Cotton Fabrics.
(3) Dyes and Dyeing.
(4) Gold and Silver.
(5) Iron and Steel Work.
(6) Ivory Working.
(7) Paper Making.
(8) Pottery and Glassware.
(9) Silk Fabrics.
(10) Stone Carving.
(11) Tanning and Working in Leather.
(12) Wire and Tinsel.
(13) Wood Carving.
(14) Woollen Fabrics.

Presidency, although the best part of a lakh of rupees has at different times been given to Mr. Churchill of the American Mission at Ahmednagar for attempting to perfect a hand-loom.

8. We think that research work should be undertaken by Government, which should engage its own staff of skilled experts for the purpose. These experts should be mainly employed at central research departments, but should also tour throughout India, partly to acquaint themselves with local conditions and partly to give advice to those that want it. In our opinion such local advice should be free in every case. We do not think that Government will be able to entertain a sufficiently large staff of experts to lend them to private companies. It is better that private companies should either engage their own experts or avail themselves of the official expert organization by visiting the central research departments with their attached laboratories (and in some cases experimental and training factories) and by consulting experts on their local tours. Should, however, it be at any time feasible for Government to lend experts for any length of time to a private company, it is scarcely possible to lay down any hard-and-fast rule as to the conditions on which they should be lent, as these would necessarily vary with the particular circumstances of each case. But, ordinarily, private companies should pay the full salary (including pension contribution, etc.) to the expert for the whole period and *in every case* the results of any research work done by him at a private factory should be immediately published.

9. While we are generally opposed to the idea of pioneer factories for the purpose of ascertaining whether a new industry is commercially practicable, we think that a demonstration factory for new as well as for existing industries on the lines suggested for the oil-pressing department of the Indian Institute of Science at Bangalore would serve a very useful purpose for certain industries, among which might be mentioned glass, matches and tanning. The exact location of such factories does not seem to be a matter of first importance, as it would be best to take advantage of existing institutions like the Bangalore Institute, whenever possible, for reasons of economy. As it is impracticable to locate all such factories together in one central and accessible place, they should be located in the most suitable spot from the point of view of abundance of raw materials, climate, water, communications, etc. Where any one province had made greater progress than other provinces in the development of any particular industry, it would have a claim to have a demonstration factory in connection with this industry located within its limits, but such a claim should not outweigh the considerations mentioned in the last sentence. While we hold strongly to the view that a central department of Imperial research in India is absolutely essential to the proper development of indigenous industries and that the ultimate aim should be to make it completely self-contained we approve of the idea that part at least of the research work necessary for the advancement of Indian industries should till then be undertaken in central laboratories in the United Kingdom, where greater facilities for such work will generally be found to exist. When thoroughly up-to-date and efficient laboratories in the United Kingdom are already engaged on research work in connection with the development of industries suitable for India, it would, in some cases, cause a regrettable duplication of work if similar laboratories were established in India. We therefore think that for some considerable time at any rate advantage should be taken of existing research laboratories in the United Kingdom instead of duplicating them in India, provided that it can be arranged that proper attention is given at the United Kingdom laboratories to the interests of this country. Full advantage should also be taken of all such bodies in England as the Advisory Council and the Imperial Institute, the latter of which has on occasion supplied valuable information in response to inquiries from India.

10. We do not think that the Advisory Council for research will be able to give much direct assistance to India, but consider that the official industrial organizations to be set up in India should keep in as close touch with this body as possible and consult it on every occasion on which it is likely to be of use. The system proposed to be established in the United Kingdom for referring research problems to colleges, etc., can only be reproduced in part in this country for various reasons. Most research work should be carried out at central research laboratories, but where any particular work can be more advantageously undertaken at a college or other appropriate institution, we are of opinion that facilities should be given therefor.

11. In addition to laboratory research work there should be a much more extensive industrial survey of the natural resources of India, particularly forest and mineral, and for this purpose the Geological Survey Department and the Imperial Forest Institute should have greatly increased staffs and funds. The precise object of such surveys should be to ascertain what raw materials exist in large quantities, what industries they can be used for and where such industries should be established, having regard to such essential considerations as communications, climate, fuel, water-supply, etc. The results of these industrial surveys should be made known by publication and by local industrial officials, like Directors of Industry, part of whose functions would be to develop the industries concerned.

12. We have very little experience of Consulting Engineers appointed by Government and do not think that such officers should be created solely for the purpose of assisting indigen-

ous industries. But we think that existing Consulting Engineers should be allowed to give technical advice to private persons as well as rough plans and estimates on the distinct understanding that neither the Engineers nor Government incurred any responsibility or liability in respect of any error committed by the former. We are, however, opposed to the purchase of plant and machinery by any official on behalf of private persons.

## SECTION III.

### *Assistance in marketing Products.*

13. It is very difficult to express an opinion upon the value of commercial museums, such as that in Calcutta, as they have not yet been introduced anywhere in this Presidency. There does, however, exist a business concern, known as the Swadeshi Stores, dealing exclusively in indigenous articles, which has attained a very considerable measure of success in the course of its 10 years' existence. The proprietors of this concern propose to extend its operations by the establishment of branches in suitable localities and expect thereby to afford facilities for the marketing of local products. The concern is not a commercial museum, but a sales agency, designed, not for the display, but for the sale of indigenous goods and it does not attempt to show side by side with such goods the imported article with which they have to compete, which would, it is presumed, be an essential part of a commercial museum. The exact value of the latter is a matter on which we do not, in the lack of actual experience, care to express any very decided opinion, but we think that if the commercial museum at Calcutta prove successful, similar institutions should be established in Presidency towns and leading trade centres throughout India. Meanwhile it is believed that the marketing of indigenous products can most effectively be advanced by the development of the Swadeshi Stores and the opening in suitable centres of branches of a central industrial bank or similar organization.

14. Industrial exhibitions also have an undoubted value in stimulating a spirit of competition, in encouraging the production of novelties and in advertising Indian manufactures. It should therefore be the policy of Government to facilitate the holding of such exhibitions at regular intervals. We are not prepared to go the length of advocating the entire organization of industrial exhibitions by official agency but think that Government should grant all facilities and encouragement to their promoters and should co-operate, where possible, by organizing certain sections, such as, for instance, an agricultural or forest or cottage industry section and, in certain cases and under certain conditions, give a grant-in-aid. The main object of these exhibitions should be to bring buyers and manufacturers into close touch, but the general public should not be excluded, as in the case of the Leipzig Fair or the British Industries Fair.

15. We are strongly in favour of the institution of trade representatives for India in Great Britain and the Colonies and of Indian commercial attachés to British Consulates in foreign countries. These representatives and attachés should possess a thorough knowledge of the commercial, industrial and economic conditions of India and a practical commercial or industrial experience, as well as, in the case of attachés, a good working knowledge of the language of the foreign country to which they are posted, except when English is the commercial language of that country. The main duties of these officials would be to find local markets for Indian products, to supply information regarding Indian products to local inquirers, to anticipate local demands, to furnish trade information and statistics to industrial officials and organizations established by Government in India and to answer direct all trade inquiries made from India by unofficial commercial and industrial organizations or by private persons and companies. Very great importance is attached to the appointment of an Indian Trade Commissioner in London, who should be highly paid and have an intimate knowledge of the industrial, commercial and economic conditions of India.

16. The appointment of Indian Trade representatives in the United Kingdom and elsewhere should not, however, entirely take the place of temporary Commissions for special inquiries. These would still be necessary in matters requiring the taking and sifting of a considerable volume of evidence, which could not be undertaken by a single official burdened with a mass of routine duties of his own, specially in the case of inquiries that involve travelling from place to place.

17. There does not seem to be any necessity for each province to have trade representatives in other provinces. We are strongly averse from multiplying officials and believe that all information required can be supplied from any province by the local Director of Industries or from the Central Bureau of Industrial Information, which it is hoped will be established under the Director-General of Commercial Intelligence.

18. We are of the opinion that the whole system of the purchase of stores by Government Departments requires revision and we commend to the consideration of the Commission the

proposals made by Mr. Thiselton-Dyer,* Mechanical Engineer to the Government of Bombay. The value of rules does not lie in their drafting but in their application. The stores rules err perhaps on the side of excessive caution, but otherwise they are well drawn and would perhaps be free from serious objection, if they were carefully followed. As a matter of practice it is believed that purchasing officers usually follow the line of least resistance and prefer to buy imported articles which they know to be of good quality rather than hunt round for locally made articles of unknown quality. The ordinary officer has not got the time for or the means of scouring the local markets for the articles he wants and naturally prefers to have them ordered for him by the Director-General, so that we believe that until we have in India a replica of the Director-General to undertake the whole supply of stores, very little will result from publishing lists and exhibiting samples in commercial museums or elsewhere. Lists must be published and samples must be exhibited of course. The lists should be annual lists of articles actually bought by each purchasing department, locally and abroad, during the previous year with the prices of each article (including, if possible, cost of delivery). Such lists, which should be supplied to any *bona fide* manufacturer or agent asking for one, will give the local manufacturer the information, which he certainly does not always, if ever, possess now, of what is wanted and what is the price he must work to. The lists, which should be very comprehensive (only excluding articles that it may not be in public interests to include), should contain as much description or specification as possible. But they will have to be supplemented by samples of all the less bulky articles, which should be on show, *not* in a commercial museum open to the public, but in the office of a local Director of Stores, open only to the trade. This officer, in whom might be merged the Superintendent of Stationery (but not Stamps), should be responsible for the purchase of all Government stores and it should rest with him whether they should be bought in India or abroad and whether they should be indigenous or imported. The existing rules would go. One of the functions of the local Director of Stores would be to receive sample of indigenous articles and give his opinion to the makers whether they were up to Government standard, *i.e.,* not necessarily fully equal in quality to the imported articles but of a sufficiently high standard to merit consideration at the time of Government's purchasing their stores.

## SECTION IV.

### *Other Forms of Government Aid to Industries.*

19. As regards the supply of raw materials by Government we are of opinion that the general policy of Government should be to facilitate the extraction of raw materials, to supply them free or on nominal terms during the experimental stages of an industry, and to levy a royalty when the industry is established, the amount of the royalty to be fixed, in some cases, on a gradually increasing scale, according to the requirements of each case. All concessions, including that of a reduced royalty, would be subject to such special conditions as might be settled between Government and the recipient.

20. The land policy of this Presidency does not impose any serious check upon industrial development, the conversion of agricultural into non-agricultural land being easily accomplished. The systems of land tenure, however, are such as to make it at times extremely difficult for an industrial enterprise to obtain sufficient land for its purposes. The most noticeable instance of this is in connection with the sugar industry, the full development of which according to modern methods is in this Presidency very seriously hampered, if not actually prohibited, by the difficulty, amounting almost to the impossibility, of any factory obtaining command of a cane-growing area large enough to meet its requirements either by purchase or lease. We therefore recently suggested to Government the advisability of taking steps for the compulsory acquisition of the necessary areas, as the only way in which this very important industry can be firmly established in Western India. In our opinion, however, the Land Acquisition Act is not the proper instrument for bringing this about. We are aware that Government have been held in the law courts to be the sole judge of the fact whether any work, for which land is acquired under this Act, is likely to prove useful to the public, but we entertain doubts whether it was ever contemplated that the Act should be used for acquiring land on behalf of private companies for industrial purposes, in which the public can have no more than an indirect interest. We therefore think that a special enabling Act should be passed under which Local Governments should be empowered to acquire land compulsorily from private owners on behalf of industrial concerns, when satisfied that such acquisition is indispensable to the development of the industry and that the development of the industry itself is in the interests of the general public.

21. It is difficult to lay down any principles governing land concessions by Government for industrial purposes beyond a general principle that the terms should be as favourable as possible, as the terms must necessarily vary with the circumstances of each case. When the concession involves the compulsory acquisition of land from a third person, we think that if

---

* Witness No. 330.

proper safeguards are included in the Act recommended in the foregoing paragraph, there will be no risk of Government committing any acts of injustice.

22. In connection with this subject we would like to draw the attention of the Commission to the serious delay occasioned by the fact that the Local Government must obtain the sanction of the Government of India to the sale or lease of land to joint stock companies, although it is understood that the Local Government have power finally to sanction sales or leases to individuals. In our opinion the Local Government should have full powers to dispose of the former class of sales and leases without any reference to the Imperial Government, which may cause delay detrimental to industrial interests.

23. We think that subterranean water might be utilized for industrial purposes subject to certain safeguards and Government should extend their programme of deep artesian borings with this object in view. Considerable caution, however, would have to be exercised owing to the uncertainty of the subterranean supply and preference would invariably have to be given to domestic and agricultural requirements over industrial requirements. An industrial concern would therefore probably be ill-advised to utilize subterranean water except as a subsidiary supply. Government should assist by lending or hiring out their boring plant and should either issue Orders in Council or pass an Act imposing such restrictions as might be found necessary and prescribing a scale of rates. Every facility should also be placed by Government in the way of the utilization of surplus surface water for industrial purposes, and we would like to see a definite scheme drawn up by the Irrigation Department for every canal having a surplus supply of water. But here, too, it would have to be definitely laid down that agricultural interests come first, should there be a shortage of water at any time. In preparing schemes for canals provision should be made for giving priority of position to such industries as did not pollute the water used by them. A special water rate should be prescribed, but it should be made elastic and provision should be made for remission or reduction in special circumstances.

## SECTION V.

### *Training of Labour and Supervision.*

24. Generally speaking, the industrial development of this country is largely bound up with its educational progress. Even primary education plays an important part in stimulating the labourers' intelligence and inculcating habits of discipline and self-restraint. For the fullest industrial development of India therefore a rapid extension of education is indispensable.

25. We have no special knowledge or experience of what has been done in any industry to improve the labourers' efficiency and skill, and we are of opinion that it is not feasible to do anything with the adult labourer. The proper course is to train the children of labourers, so as to improve the next generation, and for this purpose there is an urgent need to spread primary education as rapidly as is compatible with efficiency and as funds permit. The system of apprenticeship has not been generally applied to manual labour in this country and the very existence of the Apprentices Act of 1850 is unknown to most people. In certain of the Bombay mills apprentices have been employed from time to time, but generally without agreements and without payment of fees. The result has not been very successful, as the boys are reported to have learnt very little owing to the disinclination of the foremen to teach them anything. Industrial schools have not made great progress in this Presidency. They have suffered from various disabilities, such as lack of co-ordination, dogmatic methods of teaching, absence of any definite object in view in the minds of most of the pupils, failure to turn to account the knowledge gained by them at the schools, apathetic attitude of the local authorities and lack of cordial relations between the school management and local employers of labour. The condition and status of these schools is, however, improving, and when the financial situation permits the appointment of permanent and whole-time Inspectors, which has been recommended, it may reasonably be hoped that they will prove of material benefit to industries. We doubt, however, whether any close co-ordination can ever in the near future be expected between industrial schools and the apprenticeship system. The most promising method of training skilled workmen seems to be the establishment of manual training schools for the children of the better class of artisan in the neighbourhood of big workshops and mills. Such schools, it is thought, would be freely attended by the sons of the better class of artisans, but we do not think that it would be practicable to make attendance compulsory. Day schools for mill children have recently been tried in Bombay but without success owing to the migratory habits of the children. Night schools are not thought to be suitable in India for the lower classes, but have met with some success among the better classes.

26. The industrial and technical schools as well as the College of Commerce in Bombay are under the control of the Department of Education, but the schools are also subject to a Committee for the Direction of Technical Education, consisting of the Director of Public In-

struction, Chairman of the Board of Victoria Jubilee Technical Institute, two members of that Board, the Principal of the Victoria Jubilee Technical Institute and the Principal of the Poona College of Engineering, their functions being (i) to regulate the courses and standards of instruction at the several schools and classes under its control with due regard to individual circumstances of each institution, (ii) to arrange for the periodical inspection and examination of such schools and classes as regards their staff, accommodation, equipment, courses and methods of work and the actual work done, (iii) to recommend to Government grants-in-aid to such schools and classes, (iv) to arrange for the translation into the vernaculars of text-books on technical subjects, and (v) to determine the conditions under which new schools and classes shall be established by the aid of Government. It is our opinion that all industrial and technical institutions should ultimately be placed under the control of a Department of Industries, but this should not be done in the early years of such a department's existence. It would suffice at first for the Director of Industries to be an ex-officio member of the Committee of Direction. When the time is ripe for the transference of industrial and technical instruction from the Educational to the Industrial Department this Committee might still continue.

27. We are not in favour of any elaborate system of training schools for turning out supervisors of all grades and skilled managers. We think that such training should generally be provided by private enterprise at private factories. At the same time it is suggested that the training of supervisors should be undertaken by Government, on payment of a fee, in any model factory which they may set up in connection with indigenous industries. We do not believe that it will be practicable to create any scheme for the systematic study of the supervising staff of private firms abroad and do not think that Government should go further than vouch for the respectability of such employés as do leave India for the study of conditions and methods in force in the United Kingdom by giving them letters of introduction to the Indian Trade Commissioner, whom we wish to see appointed in London. This official should endeavour to arrange for the admission of students to private factories for the prosecution of their studies.

28. It is not thought possible to state precisely the circumstances and conditions under which State-aided industries should be required to train technical experts. There are very obvious difficulties in the way of a private concern giving an expert training to a man whose services will be utilized by some rival concern as soon as his training is complete. There is, however, no reason why private concerns should not train apprentices and there would be no objection to these being made a condition of State aid in certain cases, but if any attempt were made to force such a condition upon a private concern, probably more harm than good would result.

29. There is a want of uniformity in the standard of examinations for mechanical engineers in the various provinces, which should be removed. A universal standard should be adopted and at the same time a single Boiler Inspection Act should be passed for the whole of India based on the Board of Trade Rules. We would take this opportunity of expressing our opinion that the present examination in Bombay does not sufficiently test a candidate's practical knowledge of boilers.

## SECTION VI.

### *General Official Administration and Organization.*

30. The Bombay Presidency possesses at present no official organization for the development of industries, industrial and commercial questions being dealt with by the Secretariat only. The lack of an industrial executive is necessarily inimical to industrial progress and we are emphatically and unanimously in favour of a strong industrial organization being created. There is some difference of opinion whether the executive [illegible] this organization should be provincial or imperial but it is our unanimous opinion that it would be impracticable to divide the executive control between the imperial and provincial Governments. As regards the non-executive side of the organization, however, we are strongly in favour of its being entirely imperial. The scheme which we advocate is—

(i) the establishment of an Imperial Department of Industrial Research,

(ii) the establishment of an Imperial Bureau of Industrial Information, and

(iii) the establishment of a local Director of Industries, either provincial or imperial, with an Advisory Board.

31. As regards (i), we would centralize the department under a single director with a number of first rate experts to deal with each of the major industries or with groups of allied industries. Each branch should have its own separate staff and separate laboratories and in certain cases its own experimental and training factories. So far as possible all the branches of this department should be located in the same place, but this need not be insisted upon and advantage should be taken of existing institutions, such as the Imperial Forest Institute at Dehra Dun and the Indian Institute of Science at Bangalore. The functions of this depart

ment would be primarily to undertake research work in connection with important indigenous industries, both actual and potential, very much on the lines of the proposed oil-pressing research department at the Bangalore Institute. The department should also, in connection with some industries, train supervisors for Indian factories, for which purpose it would be necessary to set up small but well-equipped factories in addition to scientific laboratories, not to be worked on commercial lines, but simply to undertake experiments on a commercial scale and to train Indians to become skilled supervisors or foremen. Some of the experts attached to the various branches of this department should make annual tours throughout India in accordance with a programme pre-arranged in consultation with the local Director of Industries with the object of making local inquiries necessary for the furtherance of their research work and of giving advice on the spot to any local enterprise applying through the provincial Director of Industries.

32. As regards (ii), the bureau should, if possible, be situated at the same place as the central department of research but should be under a separate director who might be the Director-General of Commercial Intelligence with greatly enlarged functions. The main duty of this bureau would be to collect and collate information on all industrial and commercial matters, both within and without the Indian Empire, and to keep in close touch with the Board of Trade, Colonial Trade Commissioners, commercial attachés to consulates, institutions like the Imperial Institute, Kensington, and bodies like the Advisory Council for Research, as well as with all departments, associations, chambers, institutions, etc., connected with industry or commerce in India. The main idea is that there should be, side by side, with the Industrial Executive, firstly, a special and independent department of research and expert advice, and secondly a special and independent bureau of organized information, to each of which the local Director of Industries, who will be the chief Industrial executive officer in each province, will go for all advice and information.

33. As regards (iii), we are of the unanimous opinion that there should be a local Director of Industries in each province supported by an Advisory Board. We do not consider that any hard-and-fast rule should be laid down as to the source from which this official should be recruited. It is felt that all the qualifications, such as administrative experience, acquaintance with the economic and social conditions of India, business knowledge and familiarity with commercial finance which an ideal director should possess, are not likely to be combined in any one man. It is believed that in practice the director will generally be selected from one of the Indian public services, but we deprecate restricting the choice to these services and think that business men should also be eligible for the appointment. We are not, however, in favour of so-called " experts ". It is not easy to define the functions of a local Director of Industries, as they would vary with the nature of the general official industrial organization, but the following suggestions are made with respect to Bombay, *viz.* :—

(*a*) Organization and direction of pioneer industries (if undertaken by Government).

(*b*) Examination of and report to Government on all proposals for grants-in-aid, etc.

(*c*) Inquiries into causes of failure of existing (or defunct) industries and proposals for their resuscitation.

(*d*) Inquiries, *through specially appointed officers* (when necessary), into the possibilities of developing new industries.

(*e*) Development of forest resources (with assistance of a forest officer unless the Director were himself selected from the Forest Department).

(*f*) Improvement of village or cottage industries.

(*g*) Partial control of technical education (either as chairman or as a member of the Committee of Direction for Technical Education).

(*h*) Accessibility to the public, answering trade inquiries, giving general information, etc.

(*i*) Administration of factory rules and control of Factory and Boiler Department.

(*j*) Forwarding of all inquiries addressed from his province to the Imperial Department of Industrial Research and ascertaining the results of such inquiries.

(*k*) Selection of candidates for specialized training at Imperial model factories and keeping in touch with those who obtain certificates at these factories.

(*l*) To keep in touch generally with the industrial development of other provinces.

34. These functions would be exercised by the director, whether he were a provincial officer working directly under the Local Government or an Imperial officer working under an Imperial Director-General of Industries. Opinion is divided on the latter point. On the one hand it is argued that a provincial officer would be in closer touch with and more accessible to all local industrial concerns, if he were solely responsible to the Local Governments which themselves would be in a better position to deal with local problems than the Imperial Government, while on the other hand it is argued that with provincial directors there would be a probability of overlapping and lack of uniformity and co-ordination.

35. In either case, however, we are in favour of an advisory board, composed of officials and non-officials, in order to assist the director in framing his budget, drawing up his programme of work, and making recommendations to the Local Government or Imperial Director-General, on all applications for financial assistance or concessions.

36. We think that the establishment of a central bureau of industrial information would tend to prevent overlapping and waste of energy, even if the local directors were provincialized. The idea of the central bureau being to collect and collate all industrial information, its director would have full knowledge of all industrial developments in each province and a reference to him would prevent a Local Government from undertaking or supporting, without full knowledge of the facts, any industrial scheme which had either proved a failure or whose success still hung in the balance in some other province.

37. The idea of an Imperial Department of Industrial Research being to centralize all research work, there should be no danger of such work being duplicated or wasted. An annual conference of Directors of Industries at the headquarters of this department would help towards keeping directors in touch with what was in progress or contemplating elsewhere and might stimulate their zeal or imagination, but we do not put much faith in the practical utility of annual conferences.

38. The problem of cottage industries requires very careful handling and can only be dealt with by special inquiry. We advocate the creation of a separate branch of the industrial department under a special officer, subordinate to the local Director of Industries to organize and maintain these industries. At present there are not sufficient data available for making any useful suggestions in detail regarding the policy of Government in the matter. What is required first is the deputation of a special officer to make careful local inquiries all over the Presidency.

## SECTION VII.

### *Organization of Technical and Scientific Departments of Government.*

39. The technical and scientific departments of this Government are those dealing with such matters as agriculture, civil veterinary, mint, survey, boiler and factory inspection and also the Public Works, Medical and Educational Departments. There are also three Government or Government-aided institutions established for technical and scientific purposes. These are (i) the Victoria Jubilee Technical Institute, governed by a Board of Trustees, and recently recognized as the Central Technological Institute for this Presidency, round which are grouped smaller institutions, arranging their courses as preliminary to its course and maintained chiefly by local, municipal or State-aided private bodies, all under the general control of the Provincial Committee of Direction for Technical Instruction; (ii) the College of Engineering, Poona, with a standing advisory committee; and (iii) the J. J. School of Art. The two latter are under the Educational Department. A further institution, namely, the Royal Institute of Science, has not yet come into existence, but its buildings are nearing completion and it will be opened immediately after the war.

40. We have no special recommendations to make under this head except that there should be a co-ordination of all such institutions in India, even though they may still be maintained by Provincial Governments. No *local* department of scientific or technical research appears to be necessary, if our proposal for the establishment of an Imperial Department of Industrial Research is adopted. As has been indicated elsewhere in this report, the department, which we have in view, should aim at ultimately embracing all industries found suitable for India, but it should begin with a few of the more important industries or groups of allied industries first and gradually extend the sphere of its activities until the ultimate goal is reached. It is of vital importance that this department should employ absolutely first rate experts only and for this reason we feel that it will have to be recruited at first, very largely, if not entirely from Home, but *ceteris paribus* preference should be given to Indians. The department should be divided into branches, each dealing with a different subject or industry or group of allied industries and each with its own head, but all under the general control of a single director, whose powers should be, as nearly as possible, unrestricted so far as the actual research work and personnel go, subject to the control of the Commerce and Industry or preferably a separate Industry Department of the Government of India in charge of a member of the Viceroy's Council.

41. We do not favour the idea of the experts of this department being loaned to Provincial Governments, but, if such a loan were made, we think their services should, for the period of the loan, be placed absolutely at the Provincial Government's disposal. As already stated however, we think that all research work should be Imperial and that the Government expert should tour annually through the various provinces according to a programme pre-arranged with the latter to give local advice, not as the temporary officers of the Local Government, but as the permanent experts of the Imperial Department. Local Governments should onl

employ their own experts for purely cottage industries like hand-loom weaving, who should work under the direct control of the local Director of Industries.

42. As regards the development of technological research institutions, such as the Indian Institute of Science, this Committee think that all these institutions should be brought into close touch with each other and fitted into a general scheme of development for the whole of India, but not necessarily converted into Government institutions. It should be possible without this to have a complete co-ordination and centralized direction, and it should be possible to arrange that no industrial research of any kind should be undertaken at any affiliated technological institution without the approval of the head of the Imperial Research Department and that each institution should undertake any line of industrial research, which it is competent to undertake, at the desire of the head of that department. So far as possible, each institute should deal with only a limited group of allied industries to prevent overlapping and redundancy. As regards the location of these institutes, the main thing to consider is practical utility and administrative convenience. It would be best to have as many of them as possible in the same place, but advantage should certainly be taken of highly organized institutions already in existence, like the Indian Institute of Science at Bangalore.

43. We have no remarks to make on the future of the Indian Science Congress, which has produced no noticeable results in this Presidency so far as we are aware. Encouragement should be given to Indians to study abroad the conditions or methods of other countries. Technical scholarships are already given by Government of India to statutory Natives of India "for the study of scientific methods and principles underlying the practice of any handicraft, industry or profession and for the application of these methods and principles to the practices of the handicraft, industry or profession in question." That the results of this system have been somewhat disappointing appears to be due to two causes—(i) that the selected scholars have sometimes had no previous practical training in the industry for the study of which the scholarship has been granted and (ii) that there has sometimes been no scope in India for the immediate application of the knowledge gained by them after their return. In our opinion no one should be selected for one of these scholarships who has not mastered at least the rudiments of the handicraft, industry or profession, for the study of which the scholarship is granted. It is suggested that expert teaching should be given in India upto a certain point by the Government experts of the Research Department and that scholarships should be given to men specially selected by these experts from among those trained under them, so that they may complete their specialized training abroad. In this case two years would probably suffice. Otherwise the two years now given should be extended to three or in some cases protracted to four or even five years. The value of these scholarships might also be increased from £150 to £200 or £250.

44. The Government experts themselves should also be encouraged to study conditions and methods in other countries. We would go further and say that Government experts should be *required* to study conditions and methods in other countries. There is nothing that gets obsolete so quickly as an expert. It should therefore be stipulated that every expert should be required to spend a stated portion of each of his furloughs, which should be taken, so far as possible, at regular and fairly frequent intervals, in such study, according to the directions of the head of the Research Department.

45. Reference libraries containing technical and scientific works should be established in all large industrial centres. We would suggest that both the Sir Chinubhai Madhavlal Library at Ahmedabad and the Sir Vasanji Trikamji Mulji Library in Bombay should be made accessible to members of the general public approved by their respective committees.

46. This Presidency possesses a College of Commerce, of which the aim is "to furnish young men embarking on a business life with an education of a University Standard in subjects that are bound to be of primary interest and importance to them in their career" and "to train a class of Indian businessmen capable of ultimately rising, after the acquisition of practical experience in actual office work, to the higher and more responsible positions in enterprise of every kind by virtue of expert knowledge, breadth of outlook, organizing capacity and force of character."

47. Whether this College will fully realize its high aims time will show. It is yet in its infancy and its object is not always completely understood by those who avail themselves of its teaching. But when the aims described above are realized it will be rendering valuable service to the development of industrial enterprise in India. We are inclined to think that experience will show exactly in what ways this assistance can best be given and that other provinces would be wise to wait and watch the progress of the Bombay College before embarking on similar colleges of their own.

48. Municipalities and Local Boards can and should assist in the promotion of industrial and commercial development by giving every possible facility, such as conveniences of water supply, grant of land, improvement of communications and remission or reduction of local taxes.

## SECTION VIII.

### *Government Organization for the Collection and Distribution of Commercial Intelligence.*

49. We think that the methods of collecting and distributing statistics in British India are improving and have no changes to suggest. We would, however, like to see a greater co-operation with the Native States, which contain one-third of the total area of India, for the mutual benefit of the States and British India, and we would suggest that the question of adopting the same or a closely similar organization for the collection and distribution of statistics in Native States be brought prominently before the next Chief's Conference. As regards commercial intelligence, it is thought that important items of information are not always known outside the department that is immediately concerned with them nor to the general public. With a view to providing a remedy for this deficiency it is suggested that the Director of Statistics and Director-General of Commercial Intelligence should compile special provincial information as well as general collective information and send the provincial compilations to the local Directors of Industry for communication to local interests.

50. The majority of our Committee are not, however, in favour of provincial official Trade Journals. In their opinion it would be better to develop the existing *Indian Trade Journal* published by the Director-General of Commercial Intelligence, which has been of use in the past but which devotes too much space to pure statistics to render it sufficiently attractive to the commercial and industrial world. We think that the Journal would be of greater value if it were published monthly instead of weekly and would suggest that more attention might be paid to writing up the history and progress of indigenous industries. We also suggest that periodical supplements dealing with commercial and industrial matters in individual provinces might be advantageously attached to this Journal. Unofficial Trade Journals, like the *Indian Textile Journal* in Bombay, should not be interfered with in any way and should not be converted into semi-official organs by State subsidies. Industrial information likely to interest the non-English-speaking classes should be selected by the Director of Industries from the *Indian Trade Journal,* his own bulletins and private journals like the Textile Journal for translation by the Oriental Translator and publication in the vernacular press in the form of industrial press notes.

51. We think that the publication by Government of the industrial monographs (referred to in paragraph 7, which are rather of academic interest than practical value, should give place to special reports by experts (similar to those published by the Bombay Government on oil-pressing, leather and hand-loom weaving). The publication of these reports has not always been fruitful of results, partly owing to their not becoming widely enough known, partly owing to lack of private enterprise and partly owing to lack of any official organization for making practical use of them. This official organization can best be supplied by the creation of a local Director of Industries assisted by a strong advisory board and efficient trade bulletins.

52. We attach great value to the publications of the Forest and Geological Departments and would like to see them not only increase in number but also made more widely known. In our opinion a brief review of all such publications, both in the *Indian Trade Journal* and in local official trade bulletins, would assist to increase their usefulness.

## SECTION IX.

### *Other forms of Government Action and Organization.*

53. We do not think that any system of Government certificates of quality is likely to be successful, except parhaps in the case of certain classes of exports, as, for instance, hides exported for Government purposes. It is thought that a system of certificates for the Indian market is not practicable owing to the enormous difficulty and cost of maintaining it. A good firm makes its reputation by the proved quality of its goods. It does not require certificates to enhance or maintain that reputation. A system of certificates therefore would be of little use to the better class of Indian manufacturers while it would offer the inferior classes temptation to fraudulent imitation. Further, such a system would be useless unless it were adopted in every Native State in India, and although a greater co-operation and co-ordination in commercial and industrial organization between British India and Native States is confidently looked for, it will be a very long time before it can reach such a pitch as to make the working of the system possible. The only articles to which the system could be applied with even a reasonable prospect of success would be gold and silver manufactures for the hall marking of which there is something to be said. This question has been more than once before the Government of India, who have rejected the proposal after careful consideration. We do not therefore suggest that it should be reconsidered again for the present.

54. There are, however, certain classes of articles, which should be protected from adulteration by the imposition of penalties. It is understood that Government fully recognise

the necessity for new legislation to put down the evil of food adulteration and we think that, whether this legislation is imperial or provincial, it should be undertaken with the least possible delay. In our opinion the legislation should include the adulteration of such articles as drugs, oils and cotton in addition to articles of food and drink. We do not think any revival of the Cotton Frauds Act is likely to prove successful, but this is a very technical question on which the bodies representing the cotton interests are alone in a position to advise. We have no special recommendation to make at this stage on the nature of the organization required for enforcing the provisions of a comprehensive Adulteration Act. This is a matter of detail which may be left to be worked out by Government after the principle has been established.

55. As regards misdescription, we do not think that the Indian Merchandise Marks Act requires to be strengthened by fresh legislation. The trouble at present is that owing to the expense involved and the difficulty of proving misdescription in a Court of Law the public are shy of having recourse to the Act. This state of things can scarcely be remedied unless powerful associations undertake to finance prosecutions. Government cannot be expected to entertain a staff of experts solely for the purpose of prosecuting persons accused of applying false trade descriptions to goods. The initiative must rest with the members of the public, although the actual prosecution should be undertaken by the ordinary police on receipt of the necessary information.

56. Proposals for the registration of trade marks have constantly cropped up but invariably been rejected in India. The general opinion is that the existing law is sufficiently comprehensive to afford adequate protection to the legitimate users of trade marks. In this opinion we concur.

57. The registration of partnerships is a different thing and is very desirable in the interests of the public. There are, however, many difficulties in the way of introducing it into India, and it would be necessary to consider very carefully what would be its effect upon such customs of the country as the Hindu Joint Family system. We would not therefore go further than urge that a special inquiry be made into the possibility of some system of registration of partnerships.

58. We have no suggestions to offer on the subject of the patent laws except to urge the importance of assimilating as far as possible conditions of registration throughout the British Empire.

59. We do not feel able to lay down definitely that the development of any particular mineral should be at public expense only, beyond saying that the actual manufacture of munitions of war should be strictly and solely under Government control and that minerals or other raw material, if any, for which there is no other known use than for the manufacture of munitions of war should not be allowed to be developed by private enterprise.

60. We have no specific recommendations to make on the question of transport facilities in this Presidency except that there should be a steady and continuous development of roads and railways. The railway system is on the whole good, but there is still room for improvement especially in the increase of permanent way. The policy of encouraging feeder lines and light railways should be vigorously pursued. There are, however, several technical matters relating to railways, particularly in connection with rates that have been made the subject of frequent complaint. We do not feel ourselves competent to submit any concrete proposals in respect of these matters, but take this opportunity to reiterate a recommendation already made by us to the Local Government that a special Committee, composed of railway experts and representatives of the commercial and industrial interests of the country, should be appointed to investigate the whole subject of the relation of Indian railways to Indian industries.

61. It is doubtful in our opinion whether any substantial improvement can be effected in the water-ways of this Presidency, which possesses no good navigable rivers besides the Indus. Greater attention, however, might be paid to the dredging of the Konkan creeks, which have in recent years suffered severely from silting.

62. The only hydro-electric schemes actually in existence in this Presidency are those engineered by Messrs. Tata, Sons & Co., which require no description. The possibilities of developing other hydro-electric schemes are discussed in the Government Press Note attached to this report.

63. In our opinion the external trade of India does not suffer to any appreciable extent from existing shipping freights, except in the case of yarn to China, but certain industries, such as the oil-pressing industry, are handicapped by difficulty in securing freights for their products. In the case of oil there seems to be no remedy until the quantity for export is sufficiently large to induce shipping companies to accept freights in their own interest.

64. In forest matters there is too great a tendency for forest officers to look at all matters connected with forests from the departmental point of view. The industrial point of view frequently suffers eclipse. One reason of this is that the forest department is undermanned and the ordinary forest officer has not sufficient time for developing this branch of his department. The Imperial Institute of Dehra Dun has done excellent research work in the direction of the development of forest industries but there is at present no agency for making practical use of the results of its researches. What is required is in each province or in each forest circle of each province a special forest officer appointed for the sole purpose of developing and encouraging forest industries. Such an officer should be placed under the local Director of Industries. It may also be questioned whether the present method of disposing of coupes to the highest bidder is conducive to the development of industries dependent upon forest produce, as it places the industry at the mercy of the timber contractor. We have had two examples of this. The Islam Match Manufacturing Co. has complained of the difficulty of securing an adequate supply of suitable wood for its operations. On one occasion they were told that their best course would be to buy a forest coupe and sell to others such wood as they did not themselves require. That is to say, in order to get wood for their matches the Company had to enter the timber trade as well. This is not a course that can commend itself to the advocate of Government aid to indigenous industries. The second case was that of a picture frame-maker, who found that the timber contractors were raising the price of the otherwise valueless wood used by him when they found that he was dependent upon them for his raw material. Our Committee suggested to the Conservator of Forests that a maximum rate for the retail sale of this wood to frame-makers might be fixed in the contract between Government and the timber contractor but the reply was that this would upset the forest arrangements. If that is the case we consider that the forest arrangements should be made more elastic. It is vital to new industries, competing with established foreign industries, that they should at first get their raw material at easy rates, which should not be liable to unexpected enhancements; but so long as they have to buy their raw material from contractors, the rates will *not* be easy and they *will* be liable to unexpected enhancements. It should therefore be arranged either that Government should reserve certain woods required for certain industries, in auctioning coupes, and themselves extract, season and deliver these woods at central depôts to recognized manufacturers on payment of a fixed royalty, or else that the maximum prices for sale to recognized manufacturers should be fixed in the contracts between Government and the coupe purchasers.

65. We are not in a position to say whether the cost of assembling raw forest products can be reduced except in so far as the improvement of transport facilities must tend to cheapen the cost of assembling (although it may also increase the cost of the products owing to increased competition).

66. The possibility of concentrating special kinds of trees in limited areas is a purely sylvicultural question upon which we are not qualified to express an opinion. The experience of the Islam Match Manufacturing Co., which attempted a simal plantation was unfortunate, but that was probably due to lack of expert knowledge on the part of the Company. It may be doubted whether artificial plantations would be successful, but it is probable that industries like the match industry will never be able to hold their own without them in this Presidency and for this reason we should like experiments to be carried out by Government.

67. It is universally admitted that forest communications in this Presidency are sorely in need of improvement. A special Forest Engineer should be appointed for the purpose and attached to the office of the Director of Industries.

## SECTION X.

### *General.*

68. This section appears to be intended rather for persons interested in particular industries than for a Committee constituted like this Committee, which is not in a position to give specific replies to any of the questions framed in the section. They are, for instance, of opinion that questions such as the removal of the cotton excise duty, although it meets with their very strong support, would be more appropriately dealt with by bodies like the Bombay and Ahmedabad Millowners' Associations and that other questions concerning the development of particular industries should be discussed by persons directly interested in them.

*Press note referred to in paragraph 62 of the Report.*

## PUBLIC WORKS DEPARTMENT.

No. W. I.-7262 of 1916.

Bombay Castle, 13th July 1916.

### PRESS NOTE.

In accordance with the resolution which was moved by the Honourable Dewán Bahádur Godbole at the meeting of the Legislative Council held on 15th March 1916, and was accepted by Government, the following note on the sources of supply available for water power is published for general information :—

1. There are no perennial streams in the Bombay Presidency on which water power can be obtained continuously without the construction of storage reservoirs. The steep fall from the Ghats into the Konkan is evidently a very favourable feature for the production of water power, but the rivers in the Konkan are generally small, and contain but little water during 8 or 9 months in the year.

2. Of the few larger streams the Kalinadi and Bedti in the Kanara District and the Vaiturna in Thana may be mentioned. The former rise in the region above the edge of the Ghats and storage sites would be available within about 60 miles of Belgaum, Dharwar, Hubli, Marmagoa and Karwar. The Vaiturna which rises in the Nasik District above the Ghats and falls into Thana District below, at about 12 miles from Igatpuri station and 90 miles from Bombay, is probably somewhat less suitable for storage and utilization of power.

3. The best schemes, however, are likely to be based on the model of the Tata Hydro-Electric Scheme near Lonavla designed by Mr. R. B. Joyner, late of the Public Work Department, Bombay, *viz.*, the construction of storage works above the Ghats in the vicinity of a very steep fall into the Konkan, down which pipes are laid leading to a power house with machinery at the foot of the Ghats.

4. The first claim on the facilities for Ghat storage is for water to irrigate the arid plains of the Deccan. To this end extensive investigations and surveys have been made by the Public Works Department. The irrigation programme, however, has now been settled and in valleys which are outside its scope Government are prepared to grant permission to carry out the investigation of water power schemes.

5. Some of the large Ghat storage works which have been constructed or are under construction for irrigational purposes are likely to afford some facilities for the development of water power. But as the development of water power must be subordinated entirely to irrigational requirements, the use of the facilities available will be subject to certain limitations. In the first place, before any arrangement can be entered into for the use of the water for the production of power full experience must be obtained of what the irrigational requirements are likely to be at all times of the year. In the second place, a serious disadvantage from the point of view of power production attaching to the new projects, which are the most important in this connection, is that in nearly every case the tank has been designed to contain the whole of the run-off, and no discharge will ever be available for water power during the months of June to September inclusive, when the tanks are filling. One exception to this rule is that at the falls below Lake Arthur Hill, there will be a moderate flow during the monsoon months.

6. The possibilities of these irrigational dams are indicated below :—

(a) Pravara Canals Project—Lake Arthur Hill at Bhandardara in the Ahmednagar District. The dam is expected to be completed in 1921 and will contain 10,000 million cubic feet of water. About 4 miles below the site of this dam there is a vertical fall of 200 feet in the river bed and the water running over this steep fall will be sufficient to create more than 3,500 horse power continuously day and night, or 7,000 horse power for 12 hours daily.

b) Godavari Canals—Lake Beale in the Nasik District. The dam has been completed and holds up 8,800 million cubic feet which may give a continuous discharge of not less than 200 cusecs in the hot weather and more than double this in the rabi season. Taking 30 feet as the least head, 400 horse power would be available below the dam.

c) Nira Canals—Lake Whiting at Bhatghar in the Bhor State. The dam is about to be enlarged, and when the new dam is completed, *i.e.*, about 1926, the tank will hold 24,000 million cubic feet of water. Taking a discharge of 600 cusecs in the hot weather and a minimum head of 45 feet, the power available would be 1,800 horse power. This is based upon over 8,000 million cubic feet being left in the tank on 15th February, which would not be the case in a bad year, but would be usually a safe assumption.

7. The Government of Bombay publish annually a record of river gauging [illegible] the [illegible] area from which the available supply from any river can easily be ascertained. A reference to the topographical survey sheets would then show the possibilities of tank sites and the approximate fall available for the production of power. A number of rain gauge stations have also been established in the catchment areas of rivers and tanks and the detailed record of the rainfall is available in the offices of the Executive Engineers concerned. These observations are being made with the object of developing irrigation schemes and not specially for the investigation of hydraulic resources. Any information thus collected, if required by a promoter of a hydraulic scheme, will be supplied on application to the Secretary to Government, Public Works Department (Irrigation).

## ORAL EVIDENCE, 30TH NOVEMBER 1917.

The BOMBAY ADVISORY COMMITTEE were represented by—

1. Honourable Mr. LALUBHAI SAMALDAS.
2. Honourable Mr. M. N. HOGG.
3. Honourable Mr. PURSHOTAMDAS THAKORDAS.
4. Honourable Mr. MANMOHANDAS RAMJI.
5. Mr. J. S. WARDLAW MILNE.
6. Mr. J. B. PETIT.
7. Mr. AMBALAL SARABHAI.

The President expressed the great appreciation of the Members of the Commission and himself of the valuable evidence submitted to them by the Bombay Advisory Committee. The whole of the evidence in Bombay had been very helpful to the Commission, and it showed that the people in Bombay had thought out carefully the various aspects of industrial problems in other provinces. A good deal of this, he thought, was probably due to the activities of the Committee. There was so much in their note that the Commission were in total agreement with, that it was not likely that they would want to discuss matters very much, but would absorb the note whole. The questions they would ask would be merely supplementary.

## SECTION I.

*Mr. C. E. Low*, referring to paragraph 3, " If, however, the policy of pioneering industries should ever be adopted by Government, we think that they should be handed over to private capitalists or companies, as soon as they had fulfilled their purpose ", stated that the Commission had had very divergent and usually extremely vague views as to what private capitalists it was to be handed to. Was it to be put up to tender, or was a selection to be made ?—Mr. Milne replied that the first sentence of paragraph 3 clearly expressed their views. They had not gone into the question of when it should be handed over, nor of the method ; but presumed it would be according to the best method prevailing at the time. Mr. Petit stated that that view was held by the majority, who thought that a pioneer factory should be handed over by Government when the object had been established.

*The President* inquired what method would they adopt in handing over the factory ; whom would they select to be the recipient.—Mr. Petit replied that he would invite tenders.

*The President* asked if they would be open tenders.—Mr. Petit answered that that would be a matter of detail.

*The President* presumed that they would not necessarily accept the highest tender.—Mr. Petit replied in the negative, and added that they would also see that the party tendering was capable of doing the work. The latter condition being assured the fact of a party making the highest bid would also weigh with him very materially.

*The President* thought that in settling that question, as it would be difficult to judge of the value of the tender, they would let Government appoint a small board of arbitrators.—Mr. Petit thought that some machinery of the kind would be necessary. Mr. Purshotamdas did not see why it should be necessary to select any particular man to hand over the pioneer factory to, or any approved parties. He failed to see why the factory owner should not train people and do everything to encourage the industry himself.

*The President* inquired if that would not lead to speculation and a tendency for the people to commit suicide, because nobody would know the exact value of the industry.—Mr. Petit remarked that if nobody knew the value, nobody would go in for it. Mr. Milne said he would not have open tenders, but tenders from select people only, people whom Government could trust to carry things through properly. There were two evils, namely, one the liability of Government making mistakes, the other of people rushing in for speculation and committing outside. Mr. Hogg thought that if you handed it over without any sort of assurance as to whether the party was competent to carry on the industry, you might undo a great deal of the work that Government had done. Mr. Purshotamdas thought that the question of handing over the factory would only come in when Government had been satisfied as to the possibilities of the industry.

*The President* thought that they would never reach that stage, where you could say definitely that the thing was an assured success.—Mr. Purshotamdas said he referred to the stage when the question of disposing of it arose. The purpose which the pioneer factory fulfilled was to prove whether it was a success or not a success. Mr. Hogg thought that there was a difference between proving a success and convincing the public. If a Government factory that had proved that a certain industry was a possible success was handed over to an incompetent man, who made a mess of it, you would have to start all over again. Mr. Purshotamdas was not prepared to take it that an incompetent man would rush into an industry for the mere sake of speculation. He was not at all sure that there would be anything like the speculation which they feared.

*Hon'ble Sir Fazulbhoy Currimbhoy* inquired, if the factory was sold to the highest bidder, and worked at a loss, whether it would not be the case that all the money spent by Government would be lost. He asked Mr. Purshotamdas if he was not in favour of the suggestion that tenders should be invited, and that the tender of an approved party only should be accepted. —Mr. Purshotamdas asked why it should be to an approved party.

*Hon'ble Sir Fazulbhoy Currimbhoy* replied because the approved party could work it successfully. Once a factory was successful it would prove an inducement to others to start similar factories, and there would probably be about half a dozen started after the first. Mr. Purshotamdas inquired if it was proposed by Sir Fazulbhoy that a factory should be disposed of before it fulfilled its purpose? If you disposed of it after its success had been shown or demonstrated, there would be no necessity to follow it up when it went into private hands. Mr. Petit thought that there was such a thing as prospective improvement. Mr. Lalubhai observed that it was not the public, but the men who would take up the industry, who would have to be satisfied. It would be the few men who would be interested in the concern. Mr. Purshotamdas remarked that he would not stick to the few.

*Hon'ble Sir Fazulbhoy Currimbhoy* inquired if Mr. Purshotamdas was in favour of the proposal that there should be a pioneering of industries.—Mr. Purshotamdas replied that he was not. Mr. Ambalal stated that he was in favour of pioneering industries.

*Mr. C. E. Low* gave the instance of an article which formed the basis of high explosives, but was not used itself for military purposes. In such a case he supposed Government might take it up and make it.—Mr. Milne agreed if there was not a sufficient supply of the material to ensure its supply in time of war.

*The President* stated that the Munitions Board had discovered that there were no less than 40 or 50 industries that were absolutely essential for military purposes that had not been taken up in the country. There was no immediate hope of their being started for financial and technical reasons. If they were allowed to lie until private enterprise took them up, the chances were that private enterprise would take up only a few of them, and only those that offered prospects of profit so that they would not be developed equally. If 49 out of 50 were even developed, it might happen that the 49 without the 50th would be of no use. The President inquired if the Committee would recommend them to advise Government to go straight ahead and pioneer these industries. Mr. Lalubhai said they would, from the national point of view. Mr. Milne had a little difficulty in understanding what the President meant. Were these industries all dependent on each other, or were they separate industries? If separate, each one was to be viewed from the point of view of its merits. If it was aluminium, Government might say there is a sufficient supply of aluminium to commandeer in case of war. In regard to anything else, they might say there was not a sufficient supply to give them a basis in time of war.

*The President* suggested forming a picture of peace next year for 5 years or 10 years. In those 5 or 10 years they wanted to make the country self-contained for war purposes. Within those 10 years, judging by the past, they would not have taken up more than a comparatively small number of industries that were essential; should not Government get to work at once on those things?—Mr. Milne remarked that to the extent that the industries were essential, certainly Government should get to work.

*The President* continuing observed that one way was by Government starting the industry themselves, as a pioneer industry, and the other was by financing a company to begin the work. —Mr. Milne thought it was difficult to give an opinion without knowing what the industries were that the President had in mind. Were these industries ones in which there was a commercial possibility, in spite of war? If so, Government could make out a good enough case.

*The President* remarked that it was not necessarily a good enough case, if financial people were occupied in other financial propositions. It was not so easy to say in India that there is a field for commercial success for these things. They could say that India was a buyer on a certain scale; in some cases they could not say that India was a buyer on a large scale, and also an exporter in such a way as to give a good margin of profit.—Mr. Milne stated that it was not then a commercial possibility, that is to say, a visible possibility. He thought they would agree that in a case like that, if it was a necessity, then it was Government's duty to take it up.

*The President* inquired, if that was a correct picture of conditions in India, whether the Commission would be justified in advising Government to get a technical and scientific staff to prepare the country, since nearly all these industries depended on technical and scientific investigation.—Mr. Milne thought it was very difficult to generalize. There may be cases in which you could allow time to develop these industries. It was impossible to deal with cases generally. There may be cases in which the requirements are so small and the possibilities of supply in other places are sufficient to enable one to wait.

*The President* asked, in cases where the commercial possibilities were not obvious, would they recommend Government to offer some temptation in the way of guaranteeing dividends to a company that would undertake to manufacture articles of the kind. It would be safeguarded in this way that if the company turned out a commercial success, it should repay Government for all the expenditure incurred.—Mr. Milne asked if the President referred to cases in which the commercial possibilities were not evident, but were expected; in such a case he saw no harm in the suggestion.

Mr. Petit presumed there would be sufficient evidence for thinking that there would be profits in the course of time.

*The President* remarked that there were two things, *viz.*, commercial possibilities of which there was a doubt, and the question of national importance, of which they were certain. It was necessary to bring the industry into existence without starting Government factories unnecessarily; but if it was a case in which the article would be sold in peace time and the entire output would be wanted by the State only in war time, Government could not go into the market and sell the goods. They would be competing with some manufacturing industry, or some merchant. Would it be possible for Government then to guarantee a Company, so that that company could go into the open market and sell its goods, so that when war was declared, and the whole of the factory was wanted by Government, it would be a ready-made factory.—Mr. Lalubhai asked if they would have nothing to sell to the public during war time. Mr. Petit inquired if in ordinary times there would be a prospect of earnings by that company.

*The President* replied in the affirmative, and added that sometimes the prospect might be slight.—Mr. Petit observed that if it was clear that in ordinary times it was impossible for the company to earn money, then it was the duty of Government to supply its own requirements. Mr. Lalubhai thought that it might be that Government might require 4/5ths of the produce of the factory, while 1/5th might be put on the market. Taking it for granted that, after a time, with a Government guarantee, they could manufacture at such a price that they could keep out foreign articles, why should not Government guarantee to help, 2/3rds of the products could be taken up by Government. Mr. Petit remarked that if the company had prospects of making profits, then it was a clear case that it should be helped; if not and there was only a chance of success in war time, then he thought it was distinctly the duty of Government to conduct it. He was assuming that ordinarily they would not have a chance of success.

*The President* supposed that they realized that since this war started, the relation of industries to military operations had been changed, and that science came into operation in modern war. Mr. Petit thought that in one case it was an industrial question, and in the other a question of public policy.

*Sir F. H. Stewart*, referring to the last sentence of Section I, "Legislation appears to be necessary to prevent abuse of the word 'bank'", inquired if there were any particular points that the Committee suggested should be taken up.—Mr. Milne replied that, speaking from memory, he did not recollect that that point was very much argued. It was simply in connection with the abuse talked of by different Chambers of Commerce by people, without capital, advertising themselves as 'Banks', and getting deposits from uneducated people.

*Mr. C. E. Low* stated that one objection to that proposal which had been largely supported all over India was this. It was said that nobody should use the word 'bank' unless it was (*a*) a limited company, and (*b*) had complied with certain conditions. That would hit people like Grindlay & Co., who would either have to publish balance sheets or other information which they would not like; or they would have to come in as limited companies which they would not like either. The people who have abused the word 'bank' were all limited companies.—Mr. Milne, speaking for himself, thought that banks should be treated in this country much as Insurance Companies were. There ought to be some guarantee before being able to start, just as was the case in respect to Insurance Companies. There was no reason why a man with sufficient capital should not be allowed to trade as a bank. He thought the Insurance Companies at home paid £20,000 before they could start business as Insurance Companies. He thought that some such idea should be introduced. Mr. Hogg remarked that there was a distinction between a ' bank ' and a ' banker '. Mr. Milne thought that any private firm who wanted to trade as bankers ought to be able to make a sufficient deposit. Mr. Lalubhai stated that when they discussed this question in the Indian Merchants' Chamber of Commerce, it was thought that the work of the shroffs, who were practically doing the work of bankers, would not be stopped, provided they did not use the word ' banker '. They were in favour of having joint-stock companies so that there would be Government audit. It was true that there had been failures in joint-stock companies, which was unfortunate, but in some cases the auditors did not do their duty properly, or they were themselves corrupt. They had now the right class of men for auditing purposes. The other point was that no bank should be started under a certain capital, and that 50 per cent. of the issued capital should be paid up. Mr. Purshotamdas stated that, so far as his recollection went, the consensus of the opinion of the Indian Chambers was that the use of the word ' bank ' should be restricted, but not the word ' banker ', because Indians had not much to do with bankers; it was only the word ' bank ' which had a peculiar charm.

*Mr. C. E. Low* remarked that if one was allowed to call oneself a banker and do banking business, it was difficult not to call one's institution a bank.—Mr. Purshotamdas suggested calling all these bankers financial agents. Mr. Hogg thought that the very fact of not being allowed to use the word ' bank ' would be sufficient warning in itself. Personally he thought it was sufficient to protect the word ' bank ' and allow the use of the word ' banker '.

*Mr. Low* thought that would only be sufficient for the non-ignorant, but if a man was uneducated, would he draw a difference between the word ' bank ' and the word ' banker ' ?—Mr. Milne thought that the point was that the bank should be able to satisfy Government about its financial standing. Mr. Hogg said he did not agree with that. Mr. Purshotamdas inquired as to the number of people who accepted deposits and did shroffs' business. It was impossible to bring them all in.

*Hon'ble Sir Fazulbhoy Currimbhoy* inquired if the Committee could suggest any scheme for a central industrial bank.—Mr. Milne observed that the words " or similar organization " were added, probably at his request. Personally he did not believe that what India wanted particularly was an industrial bank, but that it still wanted more an organization of a different character from a bank. He thought that a bank that got its money locked up in industrial enterprises, especially those in the early stages, would very soon cease to be of much use. It would be in danger, after a time, of getting its capital so locked up as not to be able to withstand the shocks that may occur in the financial world. He thought that what was more wanted was management rather than pure finance. A great many concerns in India did suffer from want of finance, but a great many more suffered from want of management, want of application of ordinary business principles; so he got the Committee to add the words, "or similar organization ". He thought that an organization with wider powers than a bank was probably what was wanted in India.

*Hon'ble Sir Fazulbhoy Currimbhoy* inquired if the Committee wanted financial aid to be given.—Mr. Milne replied that an organization such as a Trust scheme could have much wider powers, both of control and of finance.

*Sir F. H. Stewart* remarked that it could be called a trading corporation.—Mr. Milne replied that there were many trading corporations which existed in Canada, Australia and various places. Those Trust Companies, which came under all sorts of names, Financial Trusts, Financial Corporations, etc., had much wider powers than banks, as was understood in British trade. As banks existed and rested on credit, and not upon their assets, there was always the danger in his mind that their operations would soon cease, because they were apt to get their money locked up.

*The President* remarked that it could make its assets fluid by issuing bonds.—Mr. Milne replied that possibly if the bank in effect became a Trust his point was made.

*The President* suggested the following illustration. A business man went to a bank for temporary help, and there were certain rules which a bank followed in giving that help, taking some guarantee or surety or a recognized good name. The industrial bank, presumably, as a bank, would in the same way be available to a man who was starting a small industry and who would go to ask for a small loan to tide over a period, or complete a new bit of machinery; and he would give the usual guarantee. Then if you went a step further, and that bank, or as Mr. Milne called it " some similar organization ", had its money tied up in a few industrial enterprises, and if a man went to that bank or similar organization for a small loan, would not the bank think, first, that it could do very little business with the man who has come, and secondly that it had got other bigger interests in competing industries. They might refuse to help that man, because they know that he will be, although a small man, a competitor with some industry in which they were largely interested. Was not there danger of their becoming in that way like the American Trusts. They would exercise discretion as to whom they would lend money to, not so much whether it was safe as whether it paid them to help competitors.—Mr. Milne replied that this feeling did not exist less in other organizations than in banks; it existed in both. That was a small point. Mr. Petit thought that in public organizations it would exist in a less degree.

*The President* was of opinion that in banks that ought not to exist, but in "similar organizations" it might, and probably would, just the same as any Company was at liberty to look to its best interests.—Mr. Milne inquired if that argument did not bear out what he said. If it was going to be a bank at all, it must be looked at from the point of view of security. If it was not going to be that, it was not going to be a bank from the point of view of other bankers, on which the credit of that bank would depend. It is not the credit of the bank as far as the public is concerned that matters, but the terms on which other banks will do business with it. It was of great importance to a bank which lived simply on credit to have a good name among other bankers. Mr. Milne preferred the wider powers under a Trust. Mr. Petit added that it would have a special constitution of its own with special powers prescribed. Mr. Lalubhai thought that industrial banks, working with sound concerns, would not lock up their money. Mr. Petit remarked that a great many industries would not have come into existence if they had not had proper support. Mr. Milne said he was not against an industrial bank, but was only pointing out that the other thing was more advantageous.

*The President* inquired what precautions would be taken for its shareholders to ensure its preserving the real functions and nature of a bank.—Mr. Milne said that India was not so badly in want of finance for new enterprises as it was in want of a financial system coupled with knowledge and experience. In his mind what India wanted was something like the National Trust started in the last six months at home. He thought the scope of that was better than pure banking.

*Mr. C. E. Low* observed that the scope of the British Trade Bank was not industrial, but trading, although they did bring in industries a bit.—Mr. Petit said that there was no doubt that the want of technical knowledge and aid had been felt by many of the concerns in India; but there was also no doubt that the want of finance was at the bottom of the failure of most concerns. He would give that the first place, higher than the want of expert knowledge, because with finance all else would follow in it train. He would give banks of this character power to give long loans, extending to a number of years, and so for that purpose would see that they were supplied with plenty of money; even Government balances and a portion of the gold reserve could be at the disposal of a bank of this character, with certain safeguards. He did think that a substantial portion of the gold reserve could or ought to be placed at the disposal of industrial banks.

*Hon'ble Sir Fazulbhoy Currimbhoy* inquired if they wanted banks with their own capital, or was the Government to guarantee capital and interest.—Mr. Petit replied that he would like a bank with its own capital, but Government should place its own resources at their disposal. Of course the necessary safeguards might be taken if Government gave these facilities, otherwise it would be impossible for long period loans to be made, and without them, industries would not be successful. He knew of an instance of safe-making, where the firm would not have been able to establish that industry, if it had not been for the fact that an enterprising Parsee gentleman lent them 1½ lakhs. That firm was now producing safes as good as any that were imported into this country. If it had not been for that timely help, it would have been impossible for that industry to have come into existence.

*The President* remarked that they had had more illustrations of that than anything else, *viz.*, the want of capital to tide over a difficult stage. Mr. Petit thought that want of finance had the first place among the difficulties that had to be overcome.

## SECTION II.

*The President* referred to the following paragraph, reading, "When thoroughly up-to-date and efficient laboratories in the United Kingdom are already engaged on research work in connection with the development of industries suitable for India, it would, in some cases, cause a regrettable duplication of work if similar laboratories were established in India." The President remarked that the sentence was covered in safety by the expression 'in some cases'. One had to admit that there were some very special cases in which research work could be done better in England; but generally speaking, he was under the impression that unless one's research work was done in India, it was not going to be much good in India.—Mr. Lalubhai stated that that had been their feeling also. Mr. Petit thought it should be in India from the very beginning.

*The President* remarked that unless research work was done under Indian conditions, with a real picture of real working conditions before one, research work was not going to be fruitful. Mr. Petit replied that three of them agreed with the President. Mr. Milne did not agree, and cited the case of the production of dyes. There was an enormous number of kindred industries connected with dyes. He thought the words used were 'the development of industries suitable for India'. It seemed to him that for many years to come there would be a very large amount of research work done at home which would be merely duplicated by the time India was ready to take up dyes on a large scale. They would then find that all the research work had been done at home, and it would be merely duplicated. Mr. Petit said that carrying it to a logical conclusion, they would have to do nothing here.

*The President*, instancing the case of dyes, said that research work was being done in England. Everybody in India, who was worth anything, in turning that research work to account, would know of the results. If they were done in secret by a firm, they would not be got at, whether a person worked in England or India. The next thing to do was to find out how these results obtained at home would apply to Indian tars and Indian gases in your by-product coking operations; the next thing would be the application of similar researches to Indian crude oils. Whether that work should be done in India or at home was the problem before the Committee.—Mr. Milne thought if it was essentially Indian it should be done in India under Indian conditions. That would only be a small portion of research work which would be carried out in India.

*The President* pointed out that the sending of samples home for purposes of research was futile. Taking the case of a vegetable, or fruit, or vegetable drug, there was not one which did not vary in quality and quantity of output, not only from month to month and week to week, but often from day to day and hour to hour in the same day. Unless the research expert was on the spot, studying the plant, he could not do his work at all. The work at home was misleading and dangerous.

*Mr. C. E. Low* stated that the point raised bore on another, *viz.*, the possible limitation of men and money. It might be found advisable to concentrate India's limited resources on certain lines of investigation, leaving out certain others, primarily because it was not possible to afford to do them; also with the knowledge that people in England were working at them, and the results of those researches would be available to India at some future time.—Mr. Milne thought it was simply a question of not duplicating work and confining themselves in India to things which would be much more beneficial to them. Mr. Milne pointed to the fact that all the finest chemical products were imported from Germany.

*The President* observed that there was another consideration which had to be kept in mind and that was that the men had to be bred who are to do research work in India. If they did not give them opportunities they would never have the men. Mr. Hogg said that it was very largely a matter of expense in their minds. The country could not afford to start researches into every imaginable kind of industry. He thought they should take full advantage of any research work that had been done at home, rather than start *ab initio* in India.

*The President* said that he believed in working side by side with his students, doing research work.—Mr. Milne remarked that their point was that if there was a good machine in America, much better than that to be found in England or Japan, let them go to America and get it; let them get the best to start with. Mr. Lalubhai observed that the danger was that if they went to England for all research work, they might not start research work at all in India.

*The President* stated that the people at home did not understand Indian conditions. The President then referred to the Committee's recommendation of demonstration factories. The Government were trying to do that in the case of tanning, and were working not on college lines but practical lines. Their experiment had been transferred to the Allahabad tannery, where it was being worked on a commercial scale. He could not say it was being worked with commercial success, but they had hopes of this early next year. Anybody could go there and see the processes, and every tanner in India was welcome to see it. The Research Institute was governed by a committee of tanners.

*Mr. C. E. Low* referred to the beginning of paragraph 8, reading, "These experts should be mainly employed at central research departments, but should also tour throughout India, partly to acquaint themselves with local conditions and partly to give advice to those that want it." He stated that the Committee then proposed to put up demonstration factories near these central research departments, which would be used to some extent for the instruction of the superior class, the supervisor class. He inquired if those research departments were to be specialized, as far as possible, and instead of having one central department of research to have two or three located in places where important local industries existed, say, metallurgy in Sakchi, textiles near Bombay, and so on, so that direct access was obtained to actual commercial factories in ordinary operation. They would have real commercial life in that particular industry all round them. They could make their pupils work under shop conditions. The experts would be in immediate touch with commercial men, and the atmosphere created in the place itself would be one of thorough specialization in particular lines which vitalized the energies and pursuits of men in a way that could not be attained in an institution of central research.—Mr. Milne thought that all that would be an excellent argument in favour of putting factories in the neighbourhood. He would not have thought that necessary in the matter of pure research. People engaged in research should be in an atmosphere of research where they could assist each other. That, however, was a matter he did not feel qualified to speak on. There was also another point of view that if they were put away by themselves, they would be very apt to get out of touch with each other.

*The President* said he would like to see research work done in natural groups of subjects. Citing the case of Sakchi, the President stated that in that neighbourhood would spring up an enormous number of metallurgical and mineral industries. There would be copper, zinc, all sorts of things all falling into one natural group. Botanical things would not be put there, nor would a zoologist or entomologist be sent there. The research work would be narrowed down into that group, and the atmosphere of research would be obtained well enough. He had found that a number of people spoke of central research institutions as they spoke at home of central technical schools. A technical school was necessarily composite in nature, on account of the large number of students, but when it came to research work, that composite nature rather handicapped things than otherwise.—Mr. Milne agreed with the President in all he said. Mr. Petit remarked that there was the fear of duplicating machinery and frittering away energy and money, not the duplication of research work.

*The President* stated that if there was a central institution of a composite nature, it would not prevent the springing up of these specialized groups in natural areas. The first thing that would happen to the central institution would be that somebody would say that from the point of view of iron and steel it was a contemptible institution; from the point of view of Pusa it was of no practical utility; and so on. Each in turn would despise the central institution.—Mr. Milne did not think so if they were all together.

*Sir D. J. Tata* thought that if each was large enough to create an atmosphere of its own, it would be different.—Mr. Milne replied that they did not pay much attention to the men engaged in research being in touch with people in trade. Mr. Petit thought there must be one central institution which should examine and circulate results and weed out useful results, and in that way the central institution would be of value.

*The President* doubted if that would be practicable. When a man took up research work he became a specialist, and was only one man doing that work. If the control of a group of specialists was to be attempted, it was necessary to let them have a free hand, under reasonable control.—Mr. Ambalal inquired if an iron research institute was put up near Sakchi and work from all over India was sent there, would the people get the advantage of that research institute.

*Mr. C. E. Low* replied that there were not many metallurgical problems in other parts of India.

*Sir D. J. Tata* pointed out that with reference to sandal wood research in Bangalore, the Mysore Government was able to submit their problems with the result that they were spending seventy-five to one-hundred-thousand rupees and were making a lakh of rupees a month out of the thing. What was wanted was a research institute of which the industry should take advantage. It was not in every case that you went to the research institute that you got results, as the results might be negative.—Mr. Lalubhai, referring to the last sentence of paragraph 8, stated that he differed from the majority, and would like to make that point clear, in regard to the results of research work done by the expert being published in every case. In practice he thought that under such circumstances nobody would care to take advantage of the expert's knowledge. If a man had 9/10ths of the knowledge and went to a firm and got the other 1/10th there by experimenting, that 1/10th of his knowledge should count. He suggested 2 to 5 years as the period when it might be kept private. The man may be employed to do the same research work by other firms, and the question was raised as to whether one could have a water-tight compartment in one's brain. He would like to give the man who employed the expert the right of keeping the process secret for a number of years. He thought he would mention this as he was the only man opposed to the idea set out in paragraph 8.

*The President* replied that when a piece of research work was done in a laboratory, or rather in an industrial institution, the people there knew more than could be published. That must always be the case. They not only knew the results of the research work, but they knew something that could not be published; so that the people in whose factory the research work was done would not only have the first chance, but would have the advantage of the immediate application of the results. The President inquired if that would not be advantage enough?—Mr. Lalubhai said that what he did not approve of were the words in italics, *viz.*, '*in every case*.'

*The President* inquired if he would agree as a general rule to results being published.—Mr ubhai replied in the negative. He thought that experts had the right to work for privat ms and keep matters secret. Although the expert might belong to Government, he wa oing the work of another in another's laboratory, and why should the fact of the expert belong g to a Government department be a sufficient reason for his results being published.

*Mr. C. E. Low* replied because the firm was getting some advantage by having the use o e Government expert instead of having to get their own.

*The President* thought that that was likely to lead to private abuses too.—Mr. Petit though was wrong in practice. Mr. Milne did not see how Government was going to have expert o lend them for several years. Mr. Petit said he would much rather that private people di ot take advantage of these experts, if they were going to have them for such long periods.

*Sir D. J. Tata* suggested that instead of employing experts as private servants of a compan he problem should be sent to the Institute of Research; then the Institute would give usef dvice.—Mr. Milne agreed to accept that. Mr. Petit thought it prevented the expert fro going to the factory and seeing things. Mr. Milne pointed out that this lending would only b ossible in a few cases. It was only a last step. He thought that if Government lent an expe o a private company at their own request, the results of his investigation should be publi roperty.

*The President* remarked that the strong side of Mr. Lalubhai's point was that that publica-ion would not be of much good unless the man revealed certain facts which belonged purely o the company, which would be a dangerous thing to do. The President's own experience ad been that companies went to him, and in order to get the help of the Geological Survey hey had to put before him their own private information. He could not give that away, and the only thing that could be done was to give the best help possible and not publish it. In that case the Government servant was not paid at all. Mr. Milne said that it was not contemplated that any private information should be published.

*The President* thought that people were unnecessarily nervous about the publication of these results.—Mr. Lalubhai remarked that the general public would not care; only the private firm.

*Sir D. J. Tata* said that the point was that if a man employed an expert of his own, he had to bring him out from England and pay all the costs. Naturally he would then be entitled to all secret information. If Government brought a man out, and a private firm gave him a fee for certain investigations, why should they be entitled to the full benefit of his services? They had not paid for all his time. For the sum of, say, Rs. 1,000 they would get work done that would have perhaps cost them Rs. 10,000.—Mr. Petit remarked that the expert was given the benefit of an accumulated experience of past years.

*The President* thought it merely came to this that the Government official ought not to be lent to private firms.—Mr. Lalubhai observed that he merely wanted to show that there was this difference of opinion.

## SECTION III.

As regards the purchase of stores by the Government Department Mr. Low asked whether the Committee endorsed the view of Mr. Thiselton-Dyer which was that there should be an agent of the Secretary of State here.—Mr. Lalubhai Samaldas said that they did not, and that they did not want an emissary of the Secretary of State here. Mr. Petit said that personally he thought that it would be quite appropriate for Government to organize industrial exhibitions, because they had a value of their own. The majority of the members of the Committee felt that industrial exhibitions need not be entirely financed or organized by Government, but personally he thought they ought to be held as often as possible because they had a value of their own and none but Government could do it. In order to make the exhibitions successful one ought to be prepared to lose a lot of money and that could be done only by Government.

*Mr. C. E. Low* said that it would pay in a Presidency town but not up-country.—Mr. Petit said that he was not saying anything about the exact places where they ought to be. Of course, the Presidency towns were the proper places where they should be. For instance, in the Bombay Presidency they might have them in Bombay or Poona and in the Bengal Presidency they might have them in Calcutta.

*Hon'ble Sir Fazulbhoy Currimbhoy* asked Mr. Petit whether he had seen the Exhibition which was held in Allahabad, and whether it was a success.—Mr. Petit said that it was a very great success, but financially it was a huge failure. He continued that that was the point he was trying to make, for if they left these organizations to private enterprise, they would be very unwilling to take them up because of the great cost involved. From the point of view of helping Indian industries the Allahabad Exhibition was a success and the money was well spent, and when he was there during the exhibition he continually saw something new and learnt something new. The exhibition being held now in Bombay was a splendid success and it was a clear case for Government financing exhibitions.

*The President* drew the attention of Mr. Petit to the fact that there were cases in which Government ought to finance these exhibitions and cases in which Government need not.—Mr. Lalubhai Samaldas said that the Committee did not want the entire organization by Government.

In reply to Mr. Thomas Mr. Lalubhai Samaldas said that the reference to Mr. Thiselton-Dyer's proposals about the purchase of stores in the Committee's note might be cut out.

*The President* said that the reason for it was that Mr. Thiselton-Dyer proposed that the Secretary of State should have his representative to buy out here, but it was a thoroughly different thing from what the Committee meant and the Commission favoured. Mr. Thiselton-Dyer did not stick to his proposal and when he thought it was impossible he gave it up.

## SECTION IV.

With reference to paragraph 20 of the Committee's note regarding the acquisition of land for industrial purposes, Mr. Wardlaw Milne said that at the time of the meeting sugar was prominently before the Committee though they went into many other industries also. He said that acquisition of land for industrial purposes should be proceeded with only if such acquisition was indispensable to the development of the industry in India and the development of the industry itself was in the interests of the general public.

*Mr. C. E. Low* said that in the opinion of Dr. Barber, the Sugarcane expert, and other people there were very large areas in Burma and Assam free of private rights and thoroughly suitable for the growing of sugarcane. The Committee wished to grow sugarcane in an area which contained a number of ryots and they would have to be turned out. When that was done and a central factory with 4,000 acres was started what would it prove? It would prove that the ryots had to be turned out and they would produce about 10,000 tons out of the 800,000 tons now imported, and they would have to go on turning out more and more ryots and do an act which would create considerable public criticism. They might increase their supply by 20,000 or 30,000 tons but that would involve the seizing of 4,000 acres more from the ryots. But if they had areas in Assam and Burma ready to hand without the turning out of a single ryot, they could produce 800,000 tons of sugar if they had the required labour.—Mr. Wardlaw Milne said that it was a very good point, but asked whether it would be possible to import sugar from Assam or Burma into Bombay to compete against sugar imported into Bombay from foreign countries, and he thought that it would be of great use even if they produced only 10,000 tons. He did not think that the committee contemplated that it would always be necessary to turn out ryots to grow sugarcane. It was impossible to get the industry started without some control over land and owing to the sub-division of land in the Presidency it was impossible to come to an agreement with the ryot because he did not see the advantage of growing sugarcane. But after one or two factories proved to be a commercial success the ryots might come round and agree to grow sugarcane. Mr. Lalubhai Samaldas said that there was a difference of opinion on this question. Mr. Petit said that he was opposed to such acquisition on principle. He said that he did not believe that it was impossible to acquire land with a little tact or a little desire to give what the man wanted.

*Hon'ble Sir R. N. Mookerjee* remarked that at Sakchi the Tatas would not have got land by their own exertions.—Mr. Petit asked whether they negotiated with the ryots before the scheme was hatched and made public.

*Sir D. J. Tata* said that they wanted about 20 square miles.—Mr. Hogg said that the interest of the individual must give way before the interests of the community. Mr. Petit said that in a country where public opinion was not as strong as elsewhere there was always the chance of the power being misused. Mr. Wardlaw Milne said that they had the safeguard, "provided the development of the industry itself is in the interests of the general public."

*Hon'ble Sir Fazulbhoy Currimbhoy* asked whether Mr. Petit would like to have an industry like the Tata Steel and Iron Company or not.—Mr. Petit said that he did not believe that if private individuals were approached properly before the scheme was hatched they would refuse. Mr. Wardlaw Milne said that the answer to that was that there actually were such refusals.

*The President* said that Mr. Petit did not want to hamper industry, and at the same time did not want to interfere with the private rights of the people unless they were fairly heard; but the people who were turned out were much better off than they were before.—Mr. Petit asked whether the owners of land at Sakchi were approached for the sale of their land before the scheme was hatched and made public.

*Sir D. J. Tata* said that he could not say off hand about Sakchi but could say something about the Hydro-electric Works. They were forming a lake in one particular direction, and they wanted to put up a dam on a particular site; and where a Poona Brahmin had some garden land; they tried by private negotiation to get him to give them the land and offered him all sorts of terms, but the man absolutely refused. They would have been compelled to use the Land Acquisition Act there but they ultimately found a more suitable place and let the man alone.—Mr. Petit said that that was after the scheme was made public.

***Sir D. J. Tata*** said that it happened while they were in the prospecting stage.

***Mr. Wardlaw Milne*** drew the attention of Mr. Petit to a discussion in the Council of the Bombay Presidency Association where a member said that one could not buy any two consecutive fields in the whole of the Poona district because the probabilities were that there would be 20 owners.

In reply to Mr. Petit's remark that the ryot was not likely to get a hearing, Mr. Lalubhai Samaldas said that it was doing injustice to the present members of the Civil Service. Mr. Petit said that it was at the pleasure of the individual officer.

***Hon'ble Sir R. N. Mookerjee*** said that if Mr. Petit tried to buy a few acres of land he would see the difficulty.

*(At this stage the Commission rose for the day.)*

## ORAL EVIDENCE CONTINUED ON 1ST DECEMBER 1917.

***The President*** said that if the Commission and the Committee did not object, Mr. P. J. Mead, the Director of Industries, who had some experience of attempting to get land as Collector of Nadiad District for sugarcane growing, could give them the results of his experience and this might help them to form some idea as to the difficulties of getting land and therefore the necessity of using something more forcible than mere private negotiations.

***Mr. Mead*** said that there were two projects put up for the Nadiad District, one for using the upstream water by pumping and another for using the flow water. The first one that was investigated when he was Collector was for using upstream water. It was obviously desirable, if you could have a company that would employ pumping, to get all the land—which was very good land but too high for flow of irrigation—under cane cultivation. When the project was first put up as he knew all the villages himself—he convinced the Government that in order to take up a big block of land necessary it would mean the practical expropriation of three villages and half of another two or three villages. That was unthinkable. In the first place, besides the hardship resulting from such wholesale expropriations, it would presumably have set the country side against the new company. The way he suggested and which was subsequently approved by Government tentatively was to apply the provisions of the Town Planning Act. If a company wanted for any public purpose to take up 6,000 acres of land, he would consider the general necessities of the whole tract such as increase of communications and the like and add them up and take up 18,000 or 19,000 or 20,000 acres of land. The owners of that land would be temporarily expropriated. The whole area would be pooled and laid out as one estate with good necessary communications and possibly drainage. That land would be distributed between the company and the original owners, roughly one-third to the company and two-thirds to the original owners. The land to be given to the company would hold more or less a central position and the land to be handed back to the original owners would be as far as possible close to their own village and as far as possible in one uniform holding. It was a common place of any irrigation experience that if the fields were divided up or sub-divided among the members of the family generally into very thin long thin strips, it was perfectly hopeless from an irrigational point of view. The waste of water was tremendous. For these, square blocks, generally about an acre, were substituted, and the advantage in the saving of water was tremendous, and the advantage in having all the holdings in one place was also considerable and at the same time a share of the water was assured. Then the value of the land before and after was calculated and each owner was compensated in cash according to the difference between his holding before and his holding after. It was an advantage in fact that they had to expropriate people giving them compensation one-third in cash and two-thirds in land. Of course, where there was other Government land it was quite a common thing to acquire land and give them other land in exchange, but when it came to a big block that was always impossible. In addition to the two projects in the Nadiad District, there were several other canal projects and he did not put forward the scheme only to be used in the case of sugarcane. Whenever a large block of land was wanted the principle would be a good one because the ryot would be compensated partly in land and partly in cash.

***The President*** asked whether it could be done in the case of a purely industrial work such as steel works or any kind of manufacturing industry where the ryots could not be allowed to share the land with the company.—Mr. Mead said that they would not share the lands. Even in the case of steel works the ryots would get, say, three-fourths in land and the rest of the compensation in cash. Supposing that a fair value of land was Rs. 300 an acre, if they gave him all the Rs. 300 the cultivator himself, being entirely ignorant of any form of investment would not know how to use it, and it would be very much better to leave him some land. Mr. Wardlaw Milne said that in the case of the sugar industry it would appear that the real difficulty was not the acquisition of land. The actual land upon which the factory would stand, he gathered would be a comparatively small block, and that might be perfectly easily purchased. The real difficulty was that there was no means in this country where education was so backward, by which one could make the ryot understand that it would pay him to grow sugarcane and there was no means by which they could prevent him from growing something else.

Mr. Petit asked whether if the cultivator found something else more profitable he should not be allowed to grow it.

Mr. Hogg remarked while Mr. Mead's scheme would undoubtedly reduce the inconvenience to the people expropriated the number was trebled, and instead of the owners of 6,000 acres being affected the owners of 18,000 acres would be affected.

Mr. Mead conceded that that point had to be taken into account, but by his scheme he would enormously benefit the people expropriated. In the first place, within that area they would get definite supplies of water and that was not the case at present. The cultivators had the land on terms of dry cultivation and whether they got water or not was entirely in the hands of Government. In the second place, in the particular area where it was proposed to make the experiment if the permission was granted, there was a lot of very heavy soil land for which perennial water could never be given except to a company which was prepared to work on modern methods. Very little water was allowed now, and a lot of that land would come under perennial irrigation if there was a company and presumably the lesson would be learnt by all the surrounding cultivators.

Mr. Wardlaw Milne said that that brought them to the other proposition which was put forward that these measures were unnecessary because Government by means of promise of water could come to some arrangement with the cultivators for the cultivation of sugarcane by saying that it would give water only on condition that sugarcane was grown, and that would be no acquisition at all.

*The President* remarked that, if the Government was given power to do that, they could be given power to do the other thing also.--Mr. Lalubhai Samaldas said that the Legal Remembrancer said that that could not be done. Mr. Petit said that he did not think that if the cultivator was convinced that by growing sugarcane he was going to make more money he would not do it, because after all he would try to make more money out of the land. Mr. Lalubhai Samaldas said that he was interested in a certain company and he could give them some history of what had happened. They tried to get some land, if possible unoccupied land in the first instance, in a block. That was not possible. Their estimate showed that unless they had about 6,000 acres--a few hundred acres more or less would not matter much—they could not grow sugarcane,--not the whole area under cane at a time, but 2,000 acres to be kept fallow every third year, 2,000 under cane and the remaining 2,000 under other crops. If they had 6,000 acres like that, then only they could start a sugar factory which would have a chance of paying a fairly good dividend. For that purpose the first idea was to acquire Government land which was unoccupied forest land or land of that kind. That land was not available. Then they tried and wanted not the land commanded by the flow but the land above the flow so that, instead of taking the lands that would have the advantage of irrigation, lands that were dry crop, or lands upon which the people were not dependent would be taken and it was proposed to use pumps, and they had practically arranged everything with the Irrigation Engineer, but the district officers, as he remarked the other day, had a real sympathy with the local people and they said that the country would be against it. Possibly the company would have seen that the country was not opposed to them, but the district officer was afraid, and rightly afraid that the feeling must be against the factory or there might be a strong agitation against Government taking these measures and he tried to find out a compromise and that was what was suggested by Mr. Milne, that Government should give an undertaking that they would supply water to the cultivators on the canal only on condition that they grew sugarcane and gave it to the factory at a certain rate. That was out of the question as the Legal Remembrancer said that the cultivators had a right to claim water and the Government could not say that they would give or not give, but they must give. The only other alternative was as suggested by Mr. Mead. The number of cultivators affected would be perhaps more. But the people instead of having only a dry crop area, would have two-thirds of that area under perennial irrigation facilities so that they would not suffer, and that was a compromise that the company in which he was interested was prepared to accept, and the company agreed to the compromise suggested by Mr. Mead: The two conditions on which Government should be prepared to help an industry were the two that the Committee had put down, namely one, that it was indispensable for the starting of the industry that the land should be acquired and the other, that the industry was for public purposes. The President asked for safeguards and Mr. Lalubhai would leave it to Government to decide whether it was indispensable and the industry was in the interests of the general public. Local officers fought for the ryots against the industry and there need not be any fear that they would ever do otherwise. If anything. It was the industry that might have to face opposition and fight it out but the ryot had the local officer in his favour, and Mr. Lalubhai did not think that there was any possibility of any hardship being inflicted on the ryot because most of the industries would have some Indian members and they would have as much sympathy for the ryots who are their own countrymen as others, and there was no reason why with this compromise of two-third irrigated lands in the owner's hands there should be any fear that the ryot would fare worse than before.

Mr. Petit said that the question still remained why the ryot would not grow sugarcane on his land if he was convinced that he would get a good profit out of it.

Mr. Lalubhai Samaldas said that he might grow it but he might convert it into jaggery or use it himself.

Mr. Hogg stated that there were certain agricultural products the market price of which fluctuates very much, such as cotton and linseed, and it was quite conceivable that it might be profitable to grow some other product than sugarcane in which case the factory would be entirely deprived of its supplies.

Mr. Mead said that he did not think that sugarcane was always in his experience the most profitable crop in the particular area they were considering. If the cultivator had the necessary knowledge and capital he would grow sugarcane. The result of the redistribution under his scheme would be that for every three acres with an uncertain chance of getting a small supply of irrigation water they would substitute two acres with a certainty of getting a larger supply of irrigation water and he had not the smallest hesitation in saying that the cultivator would be very glad to have two acres instead of the three acres, and he would get money compensation in addition.

Mr. Petit remarked that that was an alternative if it was decided that compulsion should be resorted to. One point was made that the sugar factory would be left in the lurch by the avarice of the ryot, and his answer to that was that if the cultivator wished to make money out of his land it was inconceivable that he would not continue to grow cane. One ground was advanced that in certain seasons it might be possible that some other kind of product might give him more, and his reply to that was that in that case the manufacturer of sugar should be prepared to give more for the cane.

Mr. Mead said that if the ryot was given perennial water for sugarcane he would probably grow more sugarcane than anything else.

Mr. Petit said that it was an argument in favour of his contention.

*The President* said that assuming that the ryot would grow sugarcane and stick to it, though on special occasions one might have to pay a little more for keeping him off from other products still some form of compulsion would have to be adopted for bringing into effect Mr. Mead's proposition, that is compulsion with regard to the rearrangement of land holdings. Mr. Petit said that he would propose certain safeguards if compulsion was found necessary. In reply to the question of the President what safeguards should be provided for in the event of compulsion being resorted to, Mr. Lalubhai Samaldas remarked that the ryot has a good representative in the district officer. Mr. Petit said that even then it did not mean that no legislation was necessary and read from a typed* copy the safeguards which he desired to be provided for, and subject to those safeguards he would agree to the statement on behalf of the Committee that Government should be furnished with the power of acquiring land when in the opinion of Government that land was necessary for the development of industry and the development of the industry itself was in the interests of the general public.

In reply to Mr. Low, Mr. Petit said that he suggested that the matter should be brought before the Legislative Council to prevent the possibility of private powerful organizations carrying things in their own way. Mr. Wardlaw Milne said that such a discussion in the Legislative Council would have a detrimental effect on a small industry where a small man wanted to start the industry. He could not say that the clause put in by Mr. Petit was necessary—having a public discussion by people who knew very little about it.

*Mr. C. E. Low* wanted to know whether any responsibility would attach to Government for failing to get such a proposal passed.—Mr. Petit said that it might be assumed that the members of the Legislative Council would bear the interests of the public in mind and that no odium would attach to Government at all.

*The President* asked whether such a public discussion would be fair to the ryot.

*Hon'ble Sir Fazulbhoy Currimbhoy* said that if encouragement was to be given to industry in the country we must follow what foreign countries had done. In Formosa they were following the compulsory system.—Mr. Petit said that he did not know about the conditions in Formosa, but he knew Java and Fiji and was under the impression that compulsion had not been brought into force at all. Mr. Purshotamdas said that he did not agree with all the safeguards suggested by Mr. Petit. , As much public discussion as possible should be allowed especially as it was a question of ousting people from their holdings, and [illegible] think that it would do any possible harm. He said he was not one of those who [illegible] the Legislative Council would not bear the interests of the public in mind.

---

* See Appendix

Mr. Hogg said that he did not think that a body of that size was the best body to [illegible] what would practically be judicial functions in deciding between the merits of two [illegible] He thought that the ultimate decision would rest with some specially appointed [illegible] commission of a judicial nature before which both sides could be argued.

Mr. Mead said that under the Town-planning Act it was general to take the opinion of majority of the people interested and not of any council. It might be possible to take opinion of the majority of the interested parties rather than of the Legislative Council.

Mr. Petit said that then the argument would be advanced that all the interested pa combined together.

Mr. Hogg thought that the decision ought to be given on a careful weighing of the inte of the ryots as against public interests involved. That seemed to him to be a decision distinctly judicial nature.

*The President* suggested then the appointment of a separate judicial body by Governm to decide—a small body.—Mr. Petit said that everything would depend upon the constitu of the body. He had not much faith in these bodies unless they were based on ele principle.

*Hon'ble Sir Fazulbhoy Currimbhoy* suggested that the party interested might b in a private bill as they do in England.—Mr. Wardlaw Milne said that there would be diffic in the Legislative Council understanding a case of this sort, and he would agree with Mr. H that some form of a committee or a committee of the Legislative Council would be a be idea. Mr. Petit said that the point before the Legislative Council would be whether industry was in the public interests and whether it was impossible to acquire any other l suitable for that purpose. They would not go into the merits of the scheme and the p who wished to bring the Acquisition Act into effect would have to make a good and impeachable case for the acquisition of land. Those were very simple issues. Mr. Hogg rep that in order to arrive at that decision a certain amount of evidence would have to be he and that the mere delivery of speeches on one side or the other which was the ordinary cedure in the Legislative Council was not the best method of arriving at an exact decisio facts. If evidence was to be called, there must be a small body and not a body like Legislative Council.

*Mr. G. A. Thomas* suggested that the advisory council of the Director of Industries w be a suitable body.—Mr. Petit said that even then it would depend upon the constitutio the advisory council. In the Legislative Council there was the elective principle and it going to be widened very much. In the case of the advisory committee the proceedings w be all private but in the case of the Legislative Council it would be public. Mr. Ambalal that they knew the constitution of the Legislative Council as it was at present, whereas t did not know what would be the constitution of the advisory committee and what sor people would be on it.

*The President* said that it would require so much in the way of information of a very sp kind and local inquiry and examination by experts that it could not conveniently be don the Legislative Council and the Council would be more likely to be swayed by oratory t by anything else.

Mr. Petit asked whether it would be impossible for the Legislative Council to appoi committee to investigate it, not a standing committee but a committee for the moment. ultimate decision would rest with the Legislative Council but the details might be gone by the select committee.

Mr. Wardlaw Milne stated that under the English system the decision of the select c mittee would not go back to the Parliament for confirmation.

Mr. Purshotamdas said that the decision of the committee of the Legislative Council m be final. The committee would be appointed from time to time as questions of the kind w discussion came up. He was of opinion that the select committee's opinion should be final.

Mr. Petit disagreed with this and said that it should go back to the Legislative Co for confirmation.

Mr. Lalubhai Samaldas wanted to know whether the Legislative Council could hea appeal from an act of this kind of the executive Government. If it had no power the p would bring in a private bill and the Government would be freed of all responsibility. U the present constitution it was not possible for the Legislative Council to hear an appeal, [illegible] company promoter, if the whole thing had to be done in the Legislative Council, would [illegible] to approach each member of the Council and place the facts before him and do that [illegible] thing. He was of opinion that the Town-planning Act might be followed [illegible]

[illegible] by the Notified Area Committee. If Government was going to [illegible] [illegible] to the Legislative Council, one of the members of the committee [illegible] either by the District Local Board or the Municipality affected, so that [illegible] representative would always be on the committee to safeguard the interests of his

Mr. Petit said that it was assuming that the town planning scheme was in the public [illegible] In the other case it had to be made out that the proposal was in the public [illegible]

Mr. Lalubhai Samaldas replied that in order to find that out of a committee of two or [illegible] men might be found, one of whom might be a judicial officer, one a local revenue officer a third a nominee of the local board and in that way all the safeguards that were necessary ld be provided. The Judicial officer would not be in touch with the industry, the local nue officer would have his sympathies with the people and the third would be a nominee the local board by election.

Mr. Petit was willing to withdraw his dissent from the opinion of the committee provided the safeguards he had suggested were embodied.

In reply to the President Mr. Lalubhai Samaldas said that in their recommendations in nection with water power they were only considering the question whether the company it spent money on it should have a right over the tail water or whether it exclusively onged to Government.

## SECTION V.

All the members agreed as to the need of primary education.

*Mr. C. E. Low* said that it had been suggested that the Government should give a certificate an apprentice if he stuck to his apprenticeship for the required period of time and got a good t from his employer to the satisfaction of the Government; this was an optional scheme, in ler to get over the difficulty which would arise in providing for any form of penal provision the case of youths breaking their indentures.—Mr. Wardlaw Milne stated that his own ling in regard to apprenticeship was that the system of apprenticeship had gone all over world and not only in India. He did not think that would be a practical scheme anywhere. worked all right in the Middle Ages where there were no communications practically and boy started and grew up in the shop of his master and remained there. But in modern es a system of apprenticeship in large trades was not a practical use. It was a great disvantage. The man who came under the Apprentice Act probably learnt less than the man o did not. Speaking from memory that was the general opinion of the committee at the e of the wording of the note. He strongly held that in his opinion it was absolutely necessary teach English from the earliest moment. In his opinion English ought to be a compulsory guage in India before anything else. From the point of view of industry and trade the ching of English would advance India far more quickly than at present.

In reply to the President's question whether the Committee would put the village indus-s under the Director of Industries straight off, Mr. Lalubhai Samaldas said that he would in touch with the co-operative movement. Mr. Petit drew the attention of the Commission the specific wording of the note that all industrial and technical institutions should ulti-ately be placed under the control of the Department of Industries but that it should not be ne in the early years of such a department's existence, because otherwise the schools only uld occupy all his time.

As regards the want of uniformity in the standard of examinations for mechanical engi-ers Mr. Petit said that they kept a qualified man only because they had to do it. If the eman was absent the manager was very nervous if there was any difficulty, but not *vice rsa*. Probably if they abolished the examinations they might get more incompetent men.

*The President* said that in Bengal as regards the statistics of accidents they had careful spection and the Bengal people said that the managers were sufficient examiners of the men ho were to keep the boilers because they would keep only such men as they trusted.

## SECTION VI.

Mr. Petit was of opinion that the board should be a deliberative body with the Director Secretary and not as Chairman and should have the power of budgetting its own funds and e power of initiative.

In reply to a query from the President as to whether Mr. Petit was in a big minority, Lalubhai Samaldas said that they did not like the word 'advisory' but they could not find better word. They could not use the word 'executive' because then the director would be officer of the executive body and he was also a Government officer. Mr. Lalubhai entirely reed with Mr. Petit that the board should be a deliberative body.

*The President* remarked that that might force them to separate power industry f village industry because they could not get a workable committee in any big town to s guard the interests of village industries, and village industries were not merely distinct fr but were in actual opposition to power industries.—Mr. Lalubhai Samaldas did not th that it was so. They wanted the advisory board or whatever it was to be in a position take the initiative and guide the industrial policy and to see that its instructions w carried out. But some way could be found by which more power could be given to body—call it anything, call it advisory,—and that body should have the ultimate control the industrial policy. The executive function would be left to the Director but the pol would be laid down by the board. Mr. Petit said that the executive officer should be bou to carry out the resolutions of the body. Mr. Ambalal said that there were advis committees in every district for the location of liquor shops and he thought they never m He was talking of Ahmedabad. Mr. Petit stated the reason was that when they were cal their recommendations were not always followed.

Mr. Hogg said that one great objection to have the Director as a servant of the board this. If they wanted to make him a servant of the board it might not be attractive to the m If they wanted to have a board of experienced men they must have men directly interes in the industries themselves and he did not think that men who were directly interested industries should have the last word in controlling the policy of the board.

Mr. Lalubhai Samaldas thought that they would not combine against somebody but t would neutralize each other's forces.

Mr. Petit did not think the fact that the Director was required to be a servant of the bo would deter a good man from coming in. The Bombay Commissioner was a servant of Corporation and still good men were always anxious to get that place. The Commissio was bound to carry out the orders of the Corporation.

Mr. Wardlaw Milne stated that a great many points in connection with the munic administration were, by law laid down, settled by the Commissioner without reference to Corporation. Mr. Thomas said that the Commissioner could correspond with the Governm direct himself.

Mr. Petit said that he would not dare to act in opposition to the views of the Corpora and the Corporation had the ultimate power in their hands. No doubt certain powers had b delegated to him. Mr. Petit was quite willing that similar powers should be delegated to Director of Industries.

*The President* remarked that the advisory body would not raise its own revenues as municipality did.

Mr. Petit was strongly of opinion that the committee should be the master and not servant of the Director. When there was a difference of opinion, the Government sh accept the opinion of the Committee and not of the secretary. The advisory committee m be consulted but not followed. In order to make its voice heard it must have the powe initiative and the power of making proposals which should be carried out under cer safeguards.

Mr. Purshotamdas stated that in the case of a difference of opinion between the maj of the committee and the Director the whole question should be laid before the Governmen

Mr. Petit said that such an atmosphere should not be created, but the Director must re that he was the executive officer of the committee. If he thought that he was an indepen unit and the committee thought the same of itself, it was bound to retard work.

*The President* said that an objection to that was that the Director having to wait for decision of the committee he would not be likely to act promptly or frequently as he w otherwise do, as the committee would not meet frequently.

Mr. Petit replied that it would meet as often as possible and care should be taken to that only such men were appointed as could meet that condition. The Committee w always be alert.

In the opinion of Mr. Purshotamdas, in the case of a difference of opinion between majority of the advisory committee and the Director, the matter should be placed fully be the Government whose decision should be final. The board should be something more t an advisory board. It might be called a board of industries.

So far as the constitution of the board was concerned, Mr. Petit said that the Ahmed Millowners' Association had put up a proposal with which he agreed.

Mr. Lalubhai Samaldas stated that the mofussil members might not be able to attend meetings of the board as the local members, and suggested that sub-committees migh formed.

## SECTION VII.

### *Organization of Technical and Scientific Departments of Government.*

*The President*, referring to paragraph 43, "Encouragement should be given to Indians to study abroad", stated that the Committee had pointed out that this had not been entirely successful so far, because the selected scholars had sometimes had no practical training, and that there had sometimes been no scope in India for the immediate application of the knowledge gained by them after their return. It seemed to the president that scholarships should be extended for at least one year after the man had returned to India. At present the scholarship ended with the course at home, and the President's experience, when meeting most of these scholars at home, was that in their third year they were in a state of distraction as to what they were going to do when they got to India. They did not concentrate on their work at home from the third or last year, and did not do as well as they otherwise would. They did not do justice to themselves. If they could have one year more, after returning to India, they would be willing to go into the works and do hard work. They would not be earning their living in the works in the same way, and would not feel that their dignity was being affected. They would still be trained and during that year would look around and see what opportunities there were for men of their training. They would also be able to readjust their ideas to new surroundings. Their ideas acquired in England or abroad would be readjusted to suit different conditions. The President suggested that that was probably a third term to add to the conditions for the grant of these scholarships, and he would like to know whether the Committee thought that, with that addition, scholarships were likely to be more successful than they had been.—Mr. Purshotamdas thought so decidedly. Mr. Petit was certain it would. Mr. Hogg thought it would be a good thing. Mr. Milne suggested that the scholar might be apt to think it derogatory to earn his living in the factory, and also cited the case of the scholar who was very unlikely to obtain any success in his profession.

*The President* replied that these scholars were young boys, who had not adjusted themselves to the strange atmosphere, and it did not apply to Indian students only. Students in the Universities at home were as touchy as a bundle of nerves.—Mr. Lalubhai agreed with this view.

*The President* added that they often do themselves harm by sticking out for pay which they would only be ready to earn, and would be worth, in years to come, as they had had no practical training. He did not believe that any technical institution in England could turn a boy out fit to go into any works.—Mr. Milne remarked that in England, as far as training for engineering went, they have not been of any practical value to the country whatever.

*The President* agreed with this view, and thought their value grossly exaggerated. He thought the privilege of scholarships had done a great deal of harm. A scholarship should be like a ladder that a man might climb from the ground to the topmost rung.—Mr. Milne observed that Lord Curzon had said that the best thing that could happen to a boy was to fail in a scholarship.

*The President* said that scholarships were granted at home in such a way that they more represented a hydraulic lift than a ladder. When the student got out of the door he came into competition with men coming up the stair, and the competition was very unequal.

*Mr. C. E. Low* cited a very marked instance of a man who had been home for a time and could not get on. Then he spent the last period of his scholarship time in India learning coa mining, the subject he had been making a study of, and the last Mr. Low had heard of him was that he was doing all right.

*The President* mentioned the cases of two others, but they had been practical miners befor they went home, and those were two whom the President had got appointments for, befor heir course was up in England.

*Mr. G. A. Thomas* inquired whether he should get any scholarship out here if he did nothing upposing he could not get a job, would he get the stipend then ?

*The President* replied that he would have to, because it would be one of the conditions.

*Mr. G. A. Thomas* inquired if it would be the duty of Government to find a job for him.

*The President* replied that it certainly would be.

*Mr. Thomas* remarked that Government would have more or less to guarantee givin im a job.

*The President* thought so, and added that the Director of Industries would do that.—r. Milne responded with the hope that he would be able to.

*Mr. Thomas* inquired if he would be compelled to take up a job.

*The President* replied in the negative.

*The President*, referring to paragraph [illegible], "We are inclined to [illegible] show exactly in what ways this assistance can best be given and that other provinces would be wise to wait and watch the progress of the Bombay College before embarking on similar colleges of their own ", said that he supposed this paragraph was the result of their having Bombay business men on their Committee. He inquired if the Committee wanted the other provinces to remain behind until Bombay had had a good start.—Mr. Lalubhai repudiated the idea. Mr. Petit remarked that they were certainly not yet full grown, and wanted to be quite sure that they were on the right lines.

*Mr. G. A. Thomas* thought that the advice was purely disinterested.—Mr. Petit, referring to paragraph 40, " It is of vital importance that this department should employ absolutely first rate experts only, and for this reason we feel that it will have to be recruited at first very largely if not entirely from home, but *ceteris paribus* preference should be given to Indians ", said he held that they should take experts from any part of the world, provided they were able to suit their purposes, and not necessarily confine themselves to England. Mr. Milne replied that they quite agreed with that, and there was no question of confining themselves.

*The President* remarked that, as a rule, they would not get anybody outside of England; they might in America, but they would find it very rare to get a man who would take an interest in the people of the country.—Mr. Petit observed that he would have to conduct the department in the capacity of an expert after peace was declared, and that they might get a man even from Germany. He saw no objection to that. Mr. Milne said he saw great objection to it, and disagreed with Mr. Petit's remark.

*The President* thought Mr. Petit was greatly mistaken if he thought they were going to be happy with the Germans. For the next generation they would not be happy with them; not for some time to come.—Mr. Petit remarked that after all it was not the people who were quarrelling. He did not think they should restrict themselves to England. Mr. Milne said they were not restricting themselves. Mr. Lalubhai thought they were very largely, though not entirely. Mr. Milne remarked that they had said it would probably have to be so. If it did not so happen, the position would be altered.

*The President* referred to the fact that they had had experts from Germany before, and he did not think he had come across a more complete set of failures.—Mr. Petit said they were not advocating one set of men as against another.

*The President* remarked that often experts were very good in their own lines, but they had no interest in India, and no public spirit. The public spirit was absolutely wanting.—Mr. Petit said that that was his view. He then referred to paragraph 43, " Encouragement should be given to Indians to study abroad the conditions or methods of other countries ", and said that it had been suggested some time ago in the Indigenous Industries Committee that the India Office, when making purchases, should make it a condition that Indians should be trained in factories whose products are bought. He was told that Japan, when she made he purchases from the European markets, made that a condition. If Japan could do that, why could not the British Government do likewise?

*The President* replied that they had had no definite evidence on that point.

*Mr. C. E. Low* remarked that 9-10ths of the stores purchased were engineering stores, an there had been no difficulty in Indians getting into engineering works. The trouble was wit certain special industries, of which products the Indian Government was not a very larg purchaser.—Mr. Lalubhai remarked that Sir Theodore Morrison's Committee had laid ver great stress on what Mr. Petit had said.

*The President* said that he thought his colleague, Sir R. N. Mookerjee, would sniff a that; as a business man he would say that he would not deal with a Government who woul tie him to conditions of that kind.—Mr. Milne replied that he was entirely opposed to i Mr. Petit urged that if the suppliers refused to accept the condition, then his submission w that Government should go past those firms.

Mr. Milne inquired if they were to do this and pay more elsewhere. Mr. Petit was n certain that Government would have to pay more. Mr. Milne asked if Mr. Petit would be i favour of paying more.

Mr. Petit replied that if it meant the training of Indians, he would even be prepared t pay more.

Mr. Milne cited the case of the paper trade, where there were factories in England who de finitely refused to have Indians foisted on them. In such a case it would be necessary to g to a completely different set of factories where 30 per cent. more would have to be pai involving this country in additional expense to the tune of crores of rupees.

Mr. Petit replied that, even assuming that it meant paying a little more money, he wou do that, if it meant the training of Indian and the establishment of new industries in th country.

*The President* observed that it was a matter for private influence.—Mr. Milne thought the President's suggestion an excellent one.

*The President* said that Messrs. Mather & Platt did a good deal of work for India in the greatest harmony, and that Sir William Mather had told him that he found that Indians were not taken readily by firms in England on account of the fact that they did not fall in with the work at once.—Mr. Petit replied that he assumed that the people sent home had got a preliminary grounding.

*Mr. C. E. Low* stated that another thing they had heard was that the men, owing to the spread of trade unionism, would not have Indians or anybody else from outside the country.—Mr. Petit inquired if they would not take them even as apprentices.

*The President* replied in the negative and added that they objected to that, more than anything else.—Mr. Petit inquired if it would not be a practicable proposition to go past such firms.

*Sir F. H. Stewart* observed that they would be reduced to firms and factories of inferior standing at once, if they had such compulsion. No first class firms would be dictated to in such a manner.

*Sir D. J. Tata* referring to the spread of unionism, related an incident that had occurred at the Tata Iron and Steel Works at Sakchi. They had 4 Englishmen in the Rolling Mills department, and the moment they tried to bring an Indian into that department, the 4 men laid down their tools and marched out. They said they would not work in that place if other people came in to learn the work. In connection with the Morrison Committee, Sir Theodore Morrison said that the attitude of English manufacturers in not admitting Indians into their works was having a bad effect on England's trade, because these men, who were not admitted into the workshop in England, went to America or Germany. These were the men who would develop the industries of the country in future. Naturally they got acquainted with the machinery and methods of America or Germany, and when they returned to their own country they introduced the methods and machinery with which they were best acquainted; consequently English manufactures were left out.

*Mr. C. E. Low* said he thought these men were failures out here, and they would hardly affect the policy of Indian industries.—Mr. Petit replied that, if in spite of these arguments they would not have Indians, his submission was that Government should stop purchasing their products. Mr. Milne entirely disagreed with Mr. Petit, and thought it one of the most difficult things that one could undertake. He thought that every possible thing should be done to induce manufacturers in England to receive Indian apprentices, but to bring compulsion to bear on the whole labour partly was a different thing.

Mr. Petit urged that, supposing a British manufacturer of paper refused to admit Indians, his submission was that the India Office should buy its paper from somewhere else.

*Mr. G. A. Thomas* thought it extremely improbable that Government would place orders with such a condition. While on the one hand they could compel a manufacturer to receive Indians, they could not compel him to teach those Indians.

*The President* said that the difficulty of an Indian getting into a factory was not nearl as great as people made out. They had not been entirely free of blame themselves. On heard more from people who had been unable to get in than from those who had been able He had had no difficulty in getting students into works, who wanted to get in. He had ha nothing to do with glass, or any of those few industries kept very secret, but in general engi neering works, mining, etc., he found no difficulty in getting students in; they were alway acceptable. There had been cases in which the labour had objected, not the master. Th Trade Unions objected before the masters did.—Mr. Petit replied that, seeing that the difficult was there, he ventured to suggest that some method ought to be adopted by Government b which Indians could be admitted into factories where they could learn every trade.

*The President* did not see how it was practicable to adopt any form of condition in th contract: that would mean they would have to pay very heavily and through the nose.—Mr. Petit stated that he had been told by Indians that, while they have been refused admit tance into Indian factories, they were readily admitted into factories in Germany an Austria.

*The President* replied that it was for very good reasons, the Germans having done thei very best to sow discontent in India.—Mr. Petit submitted that if Indians went all that distanc to England to learn new industries, there should be no difficulty in receiving them when the were found to be suitable.

*The President* said he could not superimpose a condition in the contract of such a natur There were lots of ways of doing it without embodying it in a contract. It would not do th student any good. He himself was not very keen on students going home to learn, as th [illegible] learn Indian conditions there, and he would much rather that they did practical wor in India. He hoped the day would come when they would not have to send students [illegible] on scholarships.

*Mr. C. E. Low* stated that the trend of their evidence had been that, except so far as the labour was concerned, there was no question whether a student was Indian or not. They would not have anybody in any facteries where secret processes went on, unless he was personally acceptable to the proprietor. He might be a relation or introduced by a friend. There was just the same difficulty for ordinary workers to get in as for Indians or anybody else. Apparently it was argued that Indians should be put into more favourable positions than others.—Mr. Petit said it was not a question of favouring a particular party. The person who makes the purchases is entitled to put conditions, and it is for the seller to accept the conditions or not. In this case the seller might be an English factory owner; then it ought to be obligatory, in the interests of India, for the India Office to go past the factory. Merely because it happened to be an English factory was no reason why the work should be placed with it.

*The President* replied that the buyer was not always in the position to dictate terms to the seller.—Mr. Milne stated that certain firms in England would not sell to the India Office at all simply because the conditions under which they purchased did not happen to suit that factory. Mr. Petit thought it was then open to the India Office to go to other firms, if their terms were not acceptable.

*The President* thought it was a very difficult scheme to put into rules.—Mr. Petit inquired if it was impossible and unworkable to lay down that where it was impossible to buy goods from factories in England because they refused to accept the terms, that such articles should be bought from outside.

*The President* did not think it was worth while raising the question, for the reason that the factories as a rule which had not got secrets did not mind Indians or anybody else going in; but the factory that had secrets, which nobody else had, did not wish that secret to be duplicated anywhere.—Mr. Petit said that he was told that an application had been made to some Indian merchants to help some Belgians. They would not help them, but suggested that they should find work for them, and offered to take up a number of them. The Belgians replied that they would not come out, and the reason was that they did not want their expert knowledge to come into the country, although the Japanese have been able to get a number of them. Mr. Lalubhai said a friend had received a letter from his friend in England, asking for subscriptions to the Belgian Relief Fund. He replied, asking why they wanted money, and requesting them to send workers out who would be provided with work here. They agreed, and had arranged matters when knowledge of the transaction came to the ears of the Belgian Consul, who protested, and wrote to Belgium not to send these people out, as, if the processes were known here, it would go against their own country. They did not come out.

*The President* inquired if he was quite sure of the facts.—Mr. Lalubhai replied in the affirmative.

*The President* asked if Mr. Samaldas went on further to say that these men who refused to come out here went to Japan.—Mr. Lalubhai replied that they were not the same men. He added that it meant that the Japanese were able to do what the British Government were unable to do.

*The President* replied that it was not the British Government, but the Agent for Japan at home.

Mr. Petit did not see any objection to going past those factories and buying articles from elsewhere, if they got them at the same price.

*The President* observed that they may not get them at the same price. The difficulty was not the undesirability of Mr. Petit's proposal, but the difficulty in carrying it out; to lay down anything of a law of that kind which nobody would ever follow, with any possible practical value to the country, when it was realized that it would not affect an Indian once in a century, and do a lot of harm to the country in having to pay fancy prices.—Mr. Petit inquired if that did not mean that English articles had to be bought whatever the conditions may be.

*The President* replied that that did not follow.—Mr. Petit inquired what was to prevent the India Office from determining that those people who did not accept those conditions would be passed over; what was unconstitutional in that? Mr. Lalubhai asked if Mr. Petit wanted orders to be placed in England with those firms who carried out Government contracts. Supposing there were no firms? Mr. Petit replied that that was so, provided they did not go outside England. Outside England what control had they?

*The President* said he would like to find out the fact about the Japanese Mr. Petit had referred to. They had had it mentioned as a rumour, but he did not think it had gone beyond that.—Mr. Milne stated that every time this had been inquired into, it had been disputed by the Japanese Government.

[illegible] he did not think the Japanese Government could.

The President remarked that the labour situation at home was difficult, and if the work-n objected to Indians going into the works, by insisting they would lose their best manu-sturers.—Mr. Petit inquired if they could not go elsewhere and buy their requirements.

*The President* replied that it was not always possible.—Mr. Petit inquired where was the rm in cases in which one could.

*The President* supposed that the officer who was doing the buying would like to do it, in ses of the kind. In the India Office every official was doing his best to get Indians into itable positions at home; but it was not possible to use any form of compulsion, as no firm as going to stand it.

*Mr. C. E. Low* remarked that if they were to adopt any forcible policy they would get he backs up of everybody, so that people who were now admitting Indians would refuse to o so in future.—Mr. Milne was entirely opposed to the whole procedure. He thought it was ad from the start. Mr. Lalubhai suggested that the Secretary of State should use his nfluence.

*Mr. G. A. Thomas* submitted that in the last sentence of paragraph 27 the Committee ad put their views very definitely. Mr. Milne remarked that in paragraph 43 the Committee tated that they thought that encouragement should be given to Indians to study abroad. He dded that nobody agreed with Mr. Petit's theory of compulsion.—Mr. Lalubhai said he agreed n substance but that it was not practicable.

*The President* remarked that he agreed in cutting the throats of every German but that it was not practicable.

## SECTION VIII.

*The President* remarked that the Committee had given the Commission suggestions about the *Indian Trade Journal*, which were a good deal more valuable than anything they had had so far. The idea of putting it out monthly, instead of weekly, was worth considering. Then the supplements dealing with commercial and industrial matters and the utilisation of the local Directors of Industries to contribute information of value was of great help. The Commission, he thought, would be able to pick out a good many of the suggestions.

## SECTION IX.

*The President* remarked that there was an enormous amount of matter in the reply that one could discuss, but they would not get any further by discussing it. He would only refer to their views about the great difficulty in introducing certificates of quality, and also the desirability of doing so, if practicable.—Mr. Petit stated that the only argument that weighed with the Committee in rejecting the suggestion was its enormous cost.

*The President* also referred to the likelihood of its being abused by subordinates. It would have to be applied to foods and drugs.—Mr. Petit said he was talking about other articles besides food.

*The President* remarked that there was always a certain amount of danger of corruption of that sort.—Mr. Petit observed that so far as the hall-marking of gold and silver articles was concerned, there was no difficulty.

*The President*, referring to paragraph 59, "Beyond saying that the actual manufacture of munitions of war should be strictly and solely under Government control, and that minerals or other raw material, if any, for which there is no other known use than for the manufacture of munitions of war, should not be allowed to be developed by private enterprise", said that he did not think there was any material that was not used for other purposes also.—Mr. Petit, in reply to a question from the President as to whether there was anything else in that section which the Committee would like to discuss, said there was only the matter of the railway rates. It had been represented that railway rates did not always work favourably for indigenous articles.

*The President* added "especially out of Bombay".—Mr. Petit replied that sometimes it was easier to take an imported article from a seaport town.

*The President* stated that the Commission had got a lot of facts about that, and were going to put them before a railway expert.—Mr. Petit observed that personally he was fo State management of railways, and wondered if that would solve the difficulties that the were now experiencing.

*The President* said he rather thought the actual question of State management was outsid the spirit of our reference. The Commission could not do more than ask for railway faciliti ust as they could ask for educational facilities; but methods they could hardly discuss.

Mr. Ambalal here told the President that he was informed that the railway rates [illegible] Broach and Ahmedabad, to which he had referred in his evidence recently,* were [illegible] be altered.

*The President* remarked that he had had about a dozen cases of complaints about rail rates, and every time he had taken them to the Railway Board, they said that special ra had been granted to the man, although the latter had told the President nothing about them.

*Mr. C. E. Low* inquired in what directions rates were to be altered.—Mr. Petit replie that he would like to have block rates from Ahmedabad to Broach reduced.

*Mr. C. E. Low* stated that the Commission had more complaints in Cawnpore and roun there. They imagined that everything had been arranged to suit big ports and not the inlan manufacturing centres.

*Sir F. H. Stewart* inquired whether in addition to forest engineers, they would have a ser of commercial service attached to the Forest Department, in order to help to dispose of the products.—Mr. Milne replied that they said that what was required was in each province o in each forest circle of each province a special forest officer appointed for the sole purpose c developing and encouraging forest industries. He thought that that almost covered it.

*The President* inquired if they thought it more suitable that the man should be a commer cial man taken into the Forest Department, or a forest officer who should have commercia tendencies and a commercial training. Mr. Thomas thought that the man should be a com mercial man with a training in forestry.—Mr. Milne stated that what was in their minds wa not an officer necessarily trained in forestry, but an officer of the Forest Department speciall set aside for commercial development.

*The President* stated that unless the forest officer had a commercial training he was likel to look upon subjects from the point of view of the Forest Department.—Mr. Milne though he should be a forest officer with commercial training. Mr. Hogg thought he should be a member of the Forest Department, and should be put on to study the commercial possibiliti of the forest.

*Mr. C. E. Low* stated that he might be a member of the Forest Department in any event even if brought in from outside.—Mr. Hogg thought he should be a forest man commerciall trained, rather than a commercial man trained in forestry.

*The President* thought they could rarely get a commercial man to go into the Fores Department unless he was a commercial failure, and they would not want that.

## APPENDIX.

*Safeguards suggested by Mr. J. B. Petit in the compulsory acquisition of land for industrial purposes.*

1. The Governor or Lieutenant-Governor in Council as the case may be, in connection with the province concerned, must in the first instance be thoroughly satisfied that a good case is made out for compulsory acquisition. In coming to this conclusion the Council must be satisfied

(*a*) that the establishment of the industry is in the public interest;

(The mere establishment of a new industry as such shall not in itself be considered to be in the public interest.)

(*b*) that it is impossible to start the industry unless land is compulsorily acquired;

(*c*) that it is not possible to buy any other land by private negotiation anywhere else in the country for the establishment of the industry.

2. The intention of Government to compulsorily acquire the land in question should be notified in the Government Gazette, and at least half a dozen principal English and Vernacular newspapers of the province, inviting the public to express their opinion on the proposed acquisition one way or the other.

3. Important public commercial and industrial bodies throughout the province concerned, such as Chambers of Commerce, Millowners' Association, Trades Associations, etc. (both Indian and European), should be invited to express their opinion on the proposal.

4. If the Governor or Lieutenant-Governor in Council is satisfied after all these precautions and after knowing the opinion of the public that land should still be acquired compulsorily, it should be so acquired on a resolution in that behalf of the Governor or Lieutenant-Governor in Council as the case may be.

5. The party whose land is so acquired should have a right of appeal to the Legislative Council of the province, which should have the right of *veto*.

6. In every case of compulsory acquisition, 20 years' purchase on the basis of [illegible] earnings should be paid in addition to 15 per cent. for compulsory acquisition.

---

* *Vide* evidence of Ahmedabad Millowners' Association. (Witness No. [illegible])

## WITNESS NO. 357.

## KARACHI INDIAN MERCHANTS' ASSOCIATION.

### WRITTEN EVIDENCE.

In their letter dated 31st July 1916 to the Deputy Secretary to the Government of Bombay, Gene calling for a statement of important local questions being investigated by the Indian Industrial Commission (copy whereof is herewith attached), the association pointed out that in Sind there are, to their belief, no such industries which have acquired special importance in India. Sind is mostly an agricultural province. There are in it some cottage industries, such as the Halla pottery, the lacquered work of Khanoth, the kheises (cotton blankets) of Nasarpur, the woollen carpets of Bubak and the bedsheets of Tatta and Mirpur Bathoro. Besides, Sind abounds in forest, agricultural and mineral products. For the investigation and development of these local industries and products the association would urge the appointment of competent Government officers to be assisted by non-officials having experience or knowledge thereof.

---

From—The HONORARY SECRETARY, Indian Merchants' Association, Karachi;

To—G. A. THOMAS, Esq., I. C. S., Deputy Secretary to the Government of Bombay,
Bombay.

With reference to your letter No. 6895 of 1916, Revenue Department, dated the 12th July 1916, in connection with the preliminary monsoon tour which Sir Thomas Holland, President, Indian Industrial Commission, proposes to make at Bombay, I have the honour by direction to state as follows.

Owing to distance and other reasons my association will not be able to meet Sir Thomas Holland at Bombay. As to the important local questions to be investigated by the Commission, my association will point out that in Sind there are, to their belief, no such industries which have attained special importance in India. There are, however, a number of local industries which, if developed on right lines, are likely to acquire wider demand. Of them the following, in the opinion of my association, deserve special consideration :—

I.—*The Halla pottery.*—The pottery turned out at Halla is famous for its ornamentation and is a speciality for presents. The variegated pots of Halla are prepared by the local men known as "kashigars" who also prepare requisite tiles for the ceiling of fashionable buildings. This industry is now not a flourishing one. But, if developed on right lines, it is likely to make its mark.

II.—*The lacquer industry of Khanoth.*—Khanoth, like Halla, is situated in the Hyderabad District. The lacquered work of Khanoth possesses the gloss and variety of colour peculiar to it. The history of this industry is briefly told by Mr. Bulchand Karamchand of Nava Vidyalaya High School (Hyderabad) in a paper published by him. The information contained therein is likely to be of much use to the Commission. This industry is now in a bad way, but it deserves development and encouragement.

III.—*The weaving industry.*—The weaving is generally done in Sind. The *kheises* (cotton blankets) of Nasarpur are famous throughout Sind. These kheises are very durable and fine-looking.

Besides the foregoing, Sind is known for several other industries, but of minor importance, such as the woollen carpets of Bubak and the bedsheets of Tatta and Mirpur Bathoro.

IV.—*Sind's resources*—

(*a*) *Forest products.*—Sind abounds in forest products. *Babul* is the most common, but there are others, such as *bahin, kandi, tali*, wild olive, *kirari, lai* and *amri*, obtainable in fair abundance. Some of them make excellent timber but others are consumed as fuel only. A better use may be made of them by process of distillation.

(*b*) *Agricultural products.*—Besides various kinds of grain, Sind produces oil-seeds of different kinds, such as jambo, sesame, rape, mustard, castor and linseed : with abundance of different kinds of oils in Sind, soap industries may be started, and lubricants and varnishes manufactured.

(*c*) *Mineral products.*—The limestone found in Sind consists of almost pure calcium carbonate. The clay and the limestone available in Sind are believed to be most suitable for purposes of cement-manufacture. Carbonate of soda is also found in great abundance. So is also the Plaster of Paris.

V.—The possibilities of sugar manufacture and of the mill industry in Sind may well be investigated by the Commission.

*(Oral evidence was not given by any representative of the Association.)*

## WITNESS No. 358.

## MR. ALFRED HYLAND, A.M.I.A.E., *Mechanical Engineer, Bombay.*

### WRITTEN EVIDENCE.

I am quite convinced in my mind that primary education would greatly improve the skill and efficiency of the workers in Engineering Works in India; this has often been brought home to me in a simple manner when I have observed intelligent mechanics unable to write but anxious to record details concerning knowledge newly acquired.

Without being too critical, I might say I have never once been able to make use of a man who has been through a course at a technical school in India. I have invariably found him unwilling to undertake any sort of manual work, and not having had sufficient practical experience he is unable to supervise satisfactorily.

What I consider is needed is some inducement for Indian lads to go through a thorough apprenticeship and to specialize in one particular branch. My experience now is, that a boy enters an engineering establishment, but before many months he runs away to another factory, which may be engaged on an entirely different class of work, to secure a rupee or two more in his monthly wage. He continues to do this until he becomes just the ordinary workman, and naturally is lacking in the efficiency he would have had, had he specialized in one distinct class of engineering.

I contend that India cannot expect to produce mechanical engineers and mechanics in large numbers at once. It is usually inborn in a man to be a successful mechanical engineer, and no amount of theoretical education will make a man a mechanical engineer if he has no aptitude for the work. For this reason I think Government should endeavour to form some scheme to encourage lads, specially those coming from families who have been engineers in the past, and others, provided they have the aptitude, to serve an apprenticeship of, say, three to four years, and to specialize in one particular line.

An agreement of apprenticeship drawn up by Government would have much weight, and I believe if Government undertook to make such agreements of apprenticeships the lads would attach much importance to them, and I venture to say that engineering firms would take an interest in the boys and willingly pay them sufficient to keep them during the term of their apprenticeship if the employers had the satisfaction of knowing that there was every possibility of the lads being turned out thoroughly efficient men. At the expiration of their apprenticeship Government should grant them papers setting out clearly the particular branch of engineering they had trained in.

Theoretical knowledge during the period of apprenticeship should be obtained from night schools, and as the apprentices would have to reside in industrial centres these facilities should be given the lads, and the ability and keenness of the individual would determine the grade he was fitted to enter on the completion of his term of apprenticeship.

It may be said there is a scarcity of engineering works in India suitably equipped for training apprentices; for, without a doubt, concerns manufacturing for the open markets where accuracy, finish and economy are of the greatest importance are where apprentices should be trained, but I think there are many mechanical engineering concerns throughout India who have the facilities and who would welcome apprentices who had an aptitude for the work, and the thoroughness to bind themselves under Government for a definite term which after all is only equal to that considered essential in Europe.

### ORAL EVIDENCE, 3RD DECEMBER 1917.

*Sir F. H. Stewart.*—*Q.* I suppose you have got a very large experience in this country as a mechanical engineer?—*A.* I have had 14 years' experience.

*Q.* How many workmen do you employ in your works?—*A.* I have just about 300.

*Q.* Are they all Indians?—*A.* No, there are three Englishmen besides myself.

*Q.* Are they foremen?—*A.* Yes, foremen and engineers also.

*Q.* What training do you give your workmen usually to begin with?—*A.* It depend upon his age. Usually the man while being trained is induced in some way or other to leav one shop and to enter another. The whole trouble is, before the man learns a particular cla of work in one factory, it is my experience he leaves to join another. Competition is ver keen.

*Q.* What sort of pay do they go up to?—*A.* I have ordinary Indians drawing up to 30 rupees a month as mechanics, but they are men who have really gone out of their way t specialize in their work.

*Q.* Have these men who have specialized been entirely trained in your factory?—*A.* Practically.

*Q.* What does the ordinary man get here?—*A.* An ordinary man here gets from [illegible] rupees per month.

*Q.* Have you tried any system of apprenticeship yourself at all?—*A.* Yes, it was most satisfactory.

*Q.* Do you think that if Government drew up some articles of indenture or something that sort, that would have effect?—*A.* I am certain, because the fact that a man was bound Government would carry a tremendous lot of weight among this class of people.

*Q.* It could only be a nominal agreement?—*A.* Yes, but take for instance a case where lad has some kind of diploma from a technical college after his apprenticeship, he values it eatly, and he would work more willingly in order to obtain something in the way of a document that he could retain for life.

*Q.* If Government say that they are willing to consider that, could you produce apprentices to enter into this agreement?—*A.* I do not anticipate any trouble because there are many en who have been with me who have boys, youngsters, who are anxious to continue in the me trade as their fathers; you could get such boys while they were young, and make em understand that they had to keep to their agreement.

*Q.* At what age do you suggest that these might be obtained?—*A.* At 13 or 14; think they should be trained for the same period as boys are trained at home, usually 3 to years.

*Q.* Then really the carrying out of the scheme would rest on the control being in your ands?—*A.* Exactly, but this would protect lads from the man outside who is continually ducing him to take up other employment, saying "come along with me, throw up this ork, and I will give you two or three more rupees;" to prevent that kind of thing.

*Q.* There would be penalty for breach of the articles?—*A.* Yes.

*Q.* And penalties for inducement to break them?—*A.* Exactly.

*Q.* And you would give a certificate to the boys after finishing the course, which Government would countersign?—*A.* Yes.

*Q.* Would you have any system of examination for these, make them pass an examination before they are given certificates?—*A.* No, I am dealing more with training men with ractical knowledge in Engineering Works; that is what is wanted.

*Q.* You say that they might get theoretical knowledge from night schools, but will they o to night schools?—*A.* If a man does not go to a night school and does not seek any theoretical knowledge, then he cannot expect to rise higher than an ordinary workman.

*Q.* How long are the hours of work in your workshops?—*A.* Ordinarily 8 to 9 hours aily; of course at the present time when we have to employ men on munition work they are orking I suppose on an average 12 hours daily, sometimes more.

*Q.* Have you any men apprentices also?—*A.* Yes. Some men.

*Q.* You always give them a training?—*A.* Yes.

*Q.* We have heard a good deal of evidence to the effect that the working hours in factoies during the day are too trying and too long for the workmen to attend night schools?—*A.* I think there is a certain amount of truth in that, but much depends upon the individual.

*Q.* However, you really think that Government should do something of that sort and hat employers could and would carry that out?—*A.* I am certain they would.

*Q.* And that the material would be forthcoming?—*A.* I am certain.

*Mr. C. E. Low.*—*Q.* We have had very strong opinions from the Indigenous Industries Committee that anything in the form of compulsion or penalty would not be desirable; would ou like a scheme with a sort of optional system, that is to say, supposing a boy is getting lack in his work in such a case if you said that he could get a Government certificate only if he ame out well in his work, would that relieve the situation at all?—*A.* It would to a certain legree.

*Q.* If you had this optional system, you might be able to work up to something useful?—*A.* Yes, if it is a success.

*Q.* You say that you have not been able to make use of any man who has been through course in a technical college; do you include the local technical college, the Victoria Jubilee Technical Institute?—*A.* Exactly.

*Q.* You never had any from there?—*A.* We have had many, but they will not work.

*Q.* Is that because their school life has been such as to give a distaste for long hours?—*A.* They are the wrong class of boy, I should say.

*Q.* But the same class in England will do well?—*A.* Exactly, but not here. For [illegible] you take a successful bank manager, very often at home this man at one time has [illegible] through his force of will.

*Q.* But is he quite different here ?—*A.* My suggestion is that first you should insist on one or two years in a workshop before he is allowed to go into one of these technical institutions.

*Q.* You think that would improve matters ?—*A.* I think certainly it would.

*Q.* So that in that period the boy himself as well as his parents may find out if he has actually any aptitude for the work ?—*A.* Yes, because usually he does not know himself at the commencement.

*Q.* Of course you recognize that there should be a rather severe searching out of suitable men before accepting them ?—*A.* Yes.

*Q.* What castes are your better men as a rule ?—*A.* I should say in Bombay my experience is that the Hindu makes the better skilled mechanic in my particular work.

*Q.* Do you get any Brahmins ?—*A.* Yes.

*Q.* Deccani Brahmins, or Gujaratis, or what ?—*A.* Both.

*Q.* What sort of education do they generally have ?—*A.* The highly skilled usually have a certain amount of education which greatly helps them; for instance, at the present moment the majority of men I have engaged on mechanical work for Government have some education, and have quickly learnt how to use a micrometer and other delicate instruments with absolute precision.

*Q.* But they are men who have had some kind of training ?—*A.* They have men in the gun carriage factory who are turning out the same class of work as in England; as far as accuracy is concerned they work to the same gauges and have exactly the same methods of checking parts before they are passed.

*Q.* You say that some of these men are Deccani Brahmins ?—*A.* Yes.

*Q.* With a practical mind ?—*A.* As an example, I have a man now who started on 50 rupees and is now drawing rupees 300 per month; he comes I believe from the Brahmin class, but he has been converted, he is now a Christian.

*Q.* Is it the case at all that the Brahmins who take up this mechanical work are men who failed to get on with their education either through poverty or failing to pass examinations ?—*A.* No, they are successful men, the men I have are educated to some degree.

*Q.* The Christian for instance ?—*A.* Yes, he is now a highly skilled man.

*Q.* How do these men get this specialized training, I suppose you specialize ?—*A.* I have men who have been engaged in war munition work for the last three years and within the three years they have gained great accuracy. They show great efficiency in some work.

*Q.* Do you find men who stick to a special line and make use of their efficiency ?—*A.* Yes, but there is always that difficulty of keeping men; they are always being enticed away. This is the greatest difficulty.

*Q.* They go away because they can get a few rupees more in another place ?—*A.* Exactly.

*Q.* A man once said to me that there are two or three firms in Bombay, who supply the whole of the Bombay Presidency with men for motor industry ?—*A.* That is exactly what I mean, firms send men down to entice, particularly promising youngsters, and offer a few rupees more to leave their training.

*Hon'ble Sir Fazulbhoy Currimbhoy.*—*Q.* You say you want night schools, what is the curriculum, will it be in the vernacular, say Hindustani, or in English ?—*A.* I think it will have to be vernacular to a great extent.

*Q.* Do the men who first come to you as apprentices have generally any education ?—*A.* Usually very little.

*Q.* Then you have got Europeans, do they speak the vernacular ?—*A.* Yes.

*Q.* Do you get these men from here or from home ?—*A.* They are from home.

*Q.* With any engineering knowledge ?—*A.* Every one of them is a specialist in his particular branch.

*Q.* I suppose you don't get your men from up-country, you take up men only from Bombay ?—*A.* From Bombay chiefly; but we are continually having raw men waiting to be trained from all parts of India.

*Q.* Do you give them any pay in the beginning, or do they work without pay ?—*A.* They usually work without any pay until they make themselves of some use.

*Q.* How many months do they go on without pay like that ?—*A.* A month or two, but I have practically given up attempting to make any sort of agreement with men. I used to start them on agreements on 8 annas stamp paper for a period of two or three years, first, giving them a small amount of pay. It was stipulated in that agreement as the man gained skill his wages were increased accordingly; but on every occasion the man worked only for a few months, he then thought he knew everything, and disappeared.

*Q.* This must be on account of the man having nothing with him; he wants to earn something to live on?—*A.* No, not exactly, for I should say that if a firm knew that a man was going to really thoroughly train himself, that firm would be prepared to assist that man.

*Q.* But the very same intelligent man having nothing with him and having to work for three years without any pay, he will be too hard up?—*A.* I do not think I have ever come across the case of a really intelligent man having no means of supporting himself.

*Q.* I suppose that must be one of the reasons: they leave because they think they can get 40 or 50 rupees elsewhere. I suppose if you give them a moderate pay of Rs. 10 a month to live on from the beginning, they may stick on?—*A.* That they do have, it is not the case that the man has nothing to live on. He does not desire to improve in his work, he thinks he has secured a certain amount of knowledge which will give him certain better pay; he has no desire to fit himself for any higher post.

*Q.* Are any Mahrattas working with you?—*A.* Yes, many.

*Q.* I suppose in your workshop every community is represented?—*A.* Yes.

*Q.* Do you think the Mahrattas and Mahomedans can do more hard work than the Deccan class? Can they do the more intelligent and delicate work?—*A.* All have their own particular class of work. For instance, the Brahman I think takes best to operating light machines.

*Q.* In reply to a question asked by the Chairman you said that the workmen work eight hours a day; after working four hours they get one hour in the middle of the day, is it not? Do they work four hours steady or do they go about, and have a smoke and loiter about?—*A.* Of course it is so in this country. The man does not work constantly, probably during that four hours he has several spells of a few minutes and takes the opportunity to smoke and so forth; that every workman does to different degrees throughout the world.

*Q.* Do you think there is no dearth of men? Are the motor works all full? Do they get men? Do all the workshops get the full complement of workers?—*A.* No, there is a very great scarcity at the present time.

*Q.* You could not get the full complement?—*A.* I think that not only with reference to motor car people but mechanical engineers everywhere will tell you the same tale, that they have great difficulties in obtaining men.

*Q.* Have you got any men from the technical institute here, do you take boys from that school?—*A.* Not a single one.

*Q.* You don't think these people are fit?—*A.* I have never been able to come across a man who has been any good to me.

*Q.* You must have known that the technical institute started a motor car teaching class?—*A.* Yes.

*Q.* Was it a failure? Do you know anything about it?—*A.* No, I have seen a number of men who had various diplomas from the school in connection with training in minor motor repairs and so forth, but they have never been of any use to me; the men have little or no inclination to work.

*Q.* What did you say was the highest salary of an Indian in your works?—*A.* Rs. 300

*Q.* Have you got any engineering association or branch association here which could arrange for the training of apprentices?—*A.* No, nothing of that sort.

*Q.* Could it be done by private employers agreeing amongst themselves?—*A.* I feel that private employers would go out of their way to try to get over this difficulty.

*Q.* You think they would really co-operate?—*A.* I think so.

## WITNESS No. 359.

*Cancelled.*

BOMBAY : PRINTED AT THE GOVERNMENT CENTRAL PRESS.